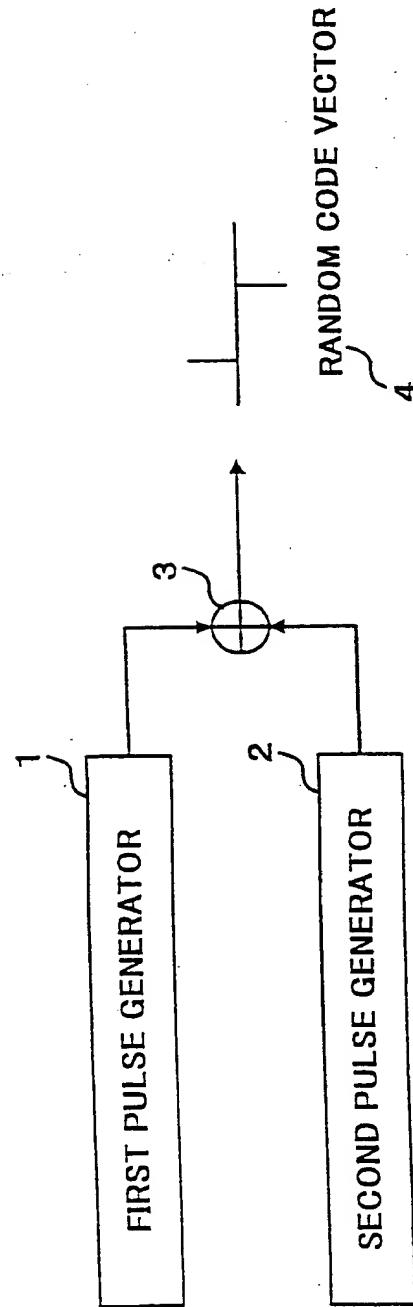


REPLACEMENT SHEET

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RELATED ART

FIG. 1

REPLACEMENT SHEET

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PULSE NUMBER	PULSE POSITION
1	0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72,74,76,78
2	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57,59,61,63,65,67,69,71,73,75,77,79

40 × 40 = 1600

RELATED ART

FIG.2

PULSE NUMBER	PULSE POSITION
1	0,3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60,63,66,69,72,75,78
2	1,4,7,10,13,16,19,22,25,28,31,34,37,40,43,46,49,52,55,58,61,64,67,70,73,76,79
3	2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59,62,65,68,71,74,77

27 × 27 × 26 = 18954

RELATED ART

FIG.3

REPLACEMENT SHEET

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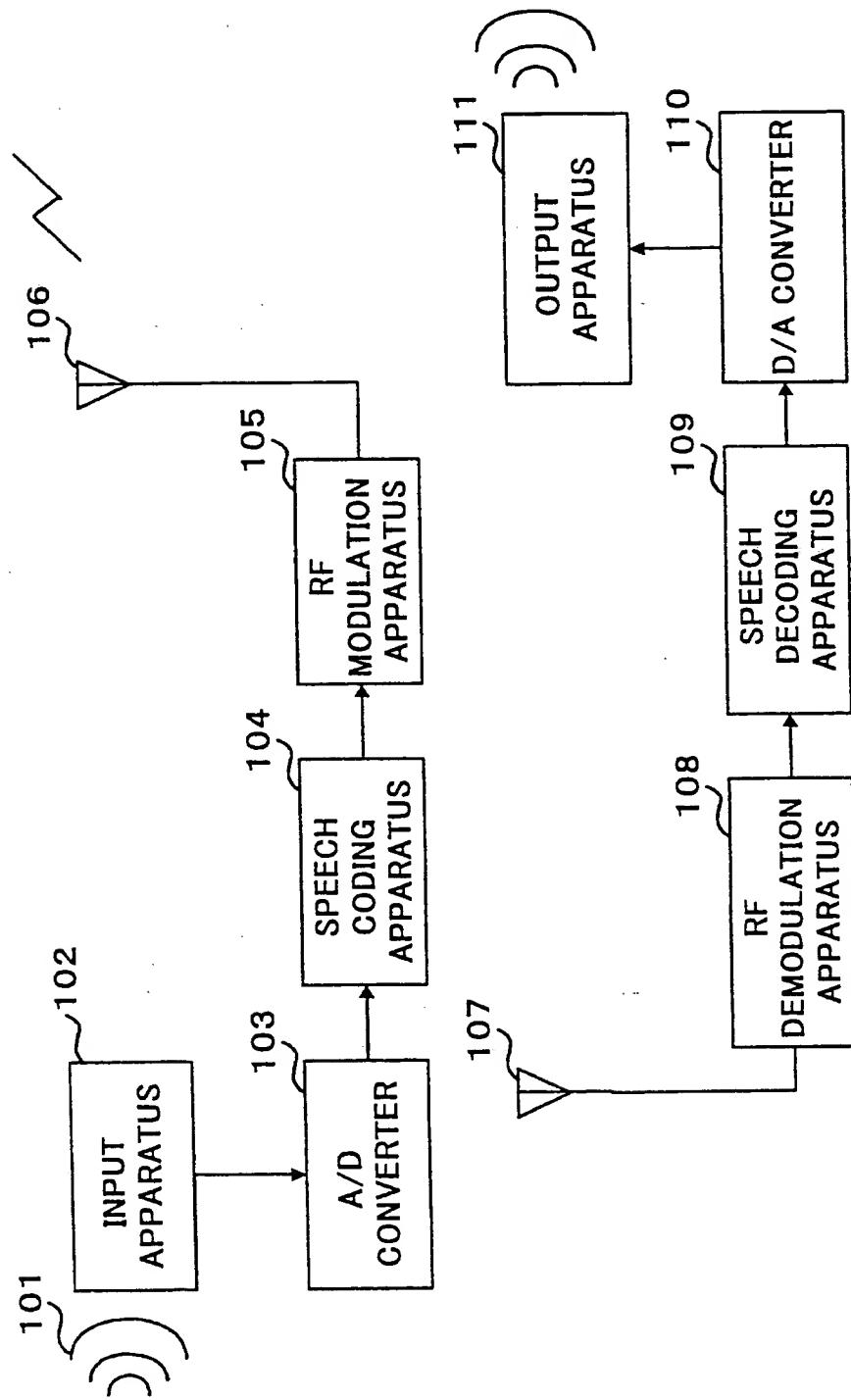


FIG. 4

REPLACEMENT SHEET

4 / 39

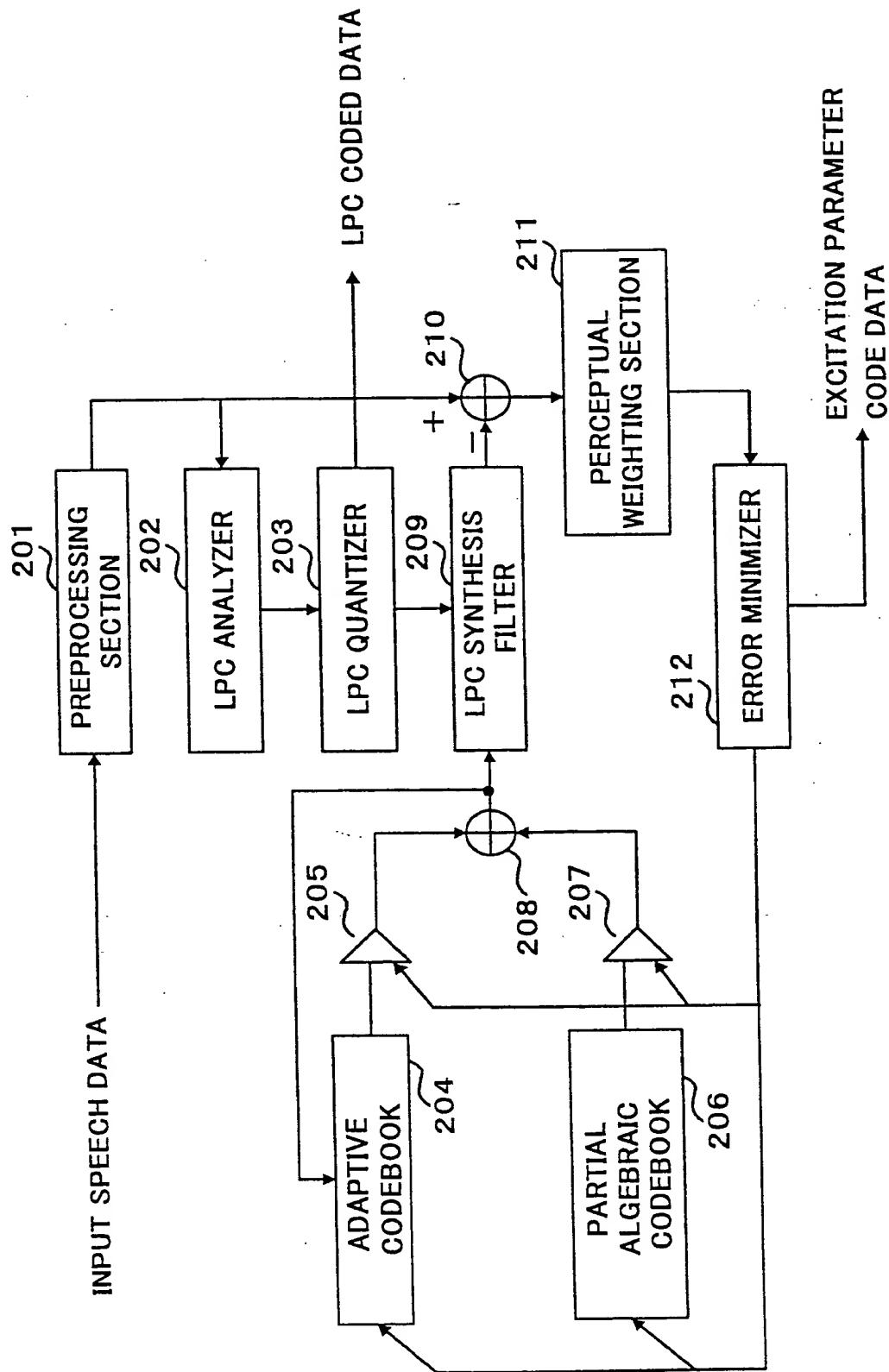


FIG.5

REPLACEMENT SHEET

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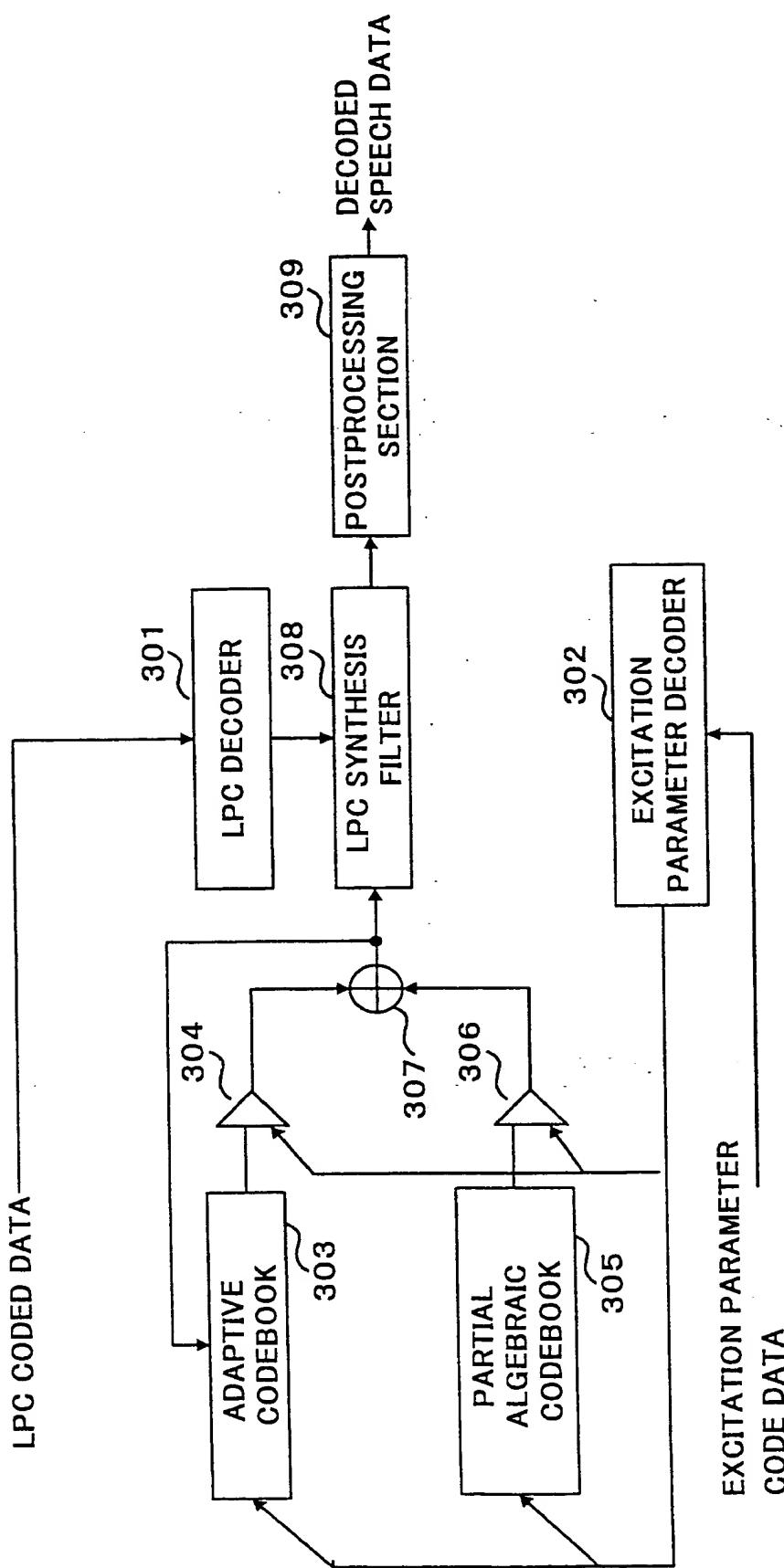


FIG.6

REPLACEMENT SHEET

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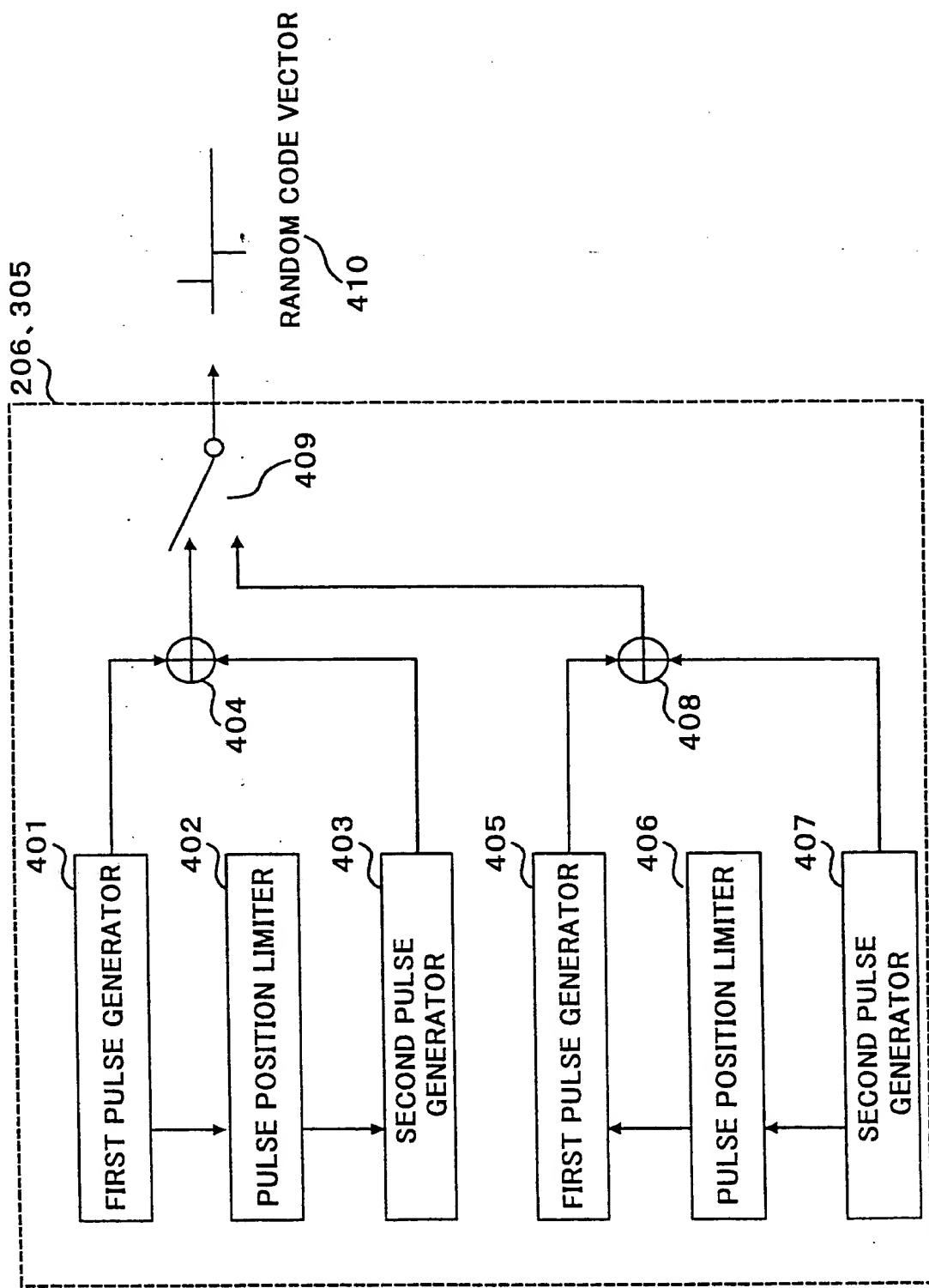


FIG. 7

REPLACEMENT SHEET

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	PULSE NUMBER	PULSE POSITION
(a)	1	0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56, 58,60,62,64,66,68,70,72
	2	P1+1,P1+3,P1+5,P1+7

	PULSE NUMBER	PULSE POSITION
(b)	1	P2+1,P2+3,P2+5,P2+7,
	2	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57, 59,61,63,65,67,69,71

	PULSE NUMBER	PULSE POSITION
(c)	1	74,76,78
	2	73,75,77,79

$$37 \times 4 + 36 \times 4 + 3 \times 4 = 304$$

FIG.8

REPLACEMENT SHEET

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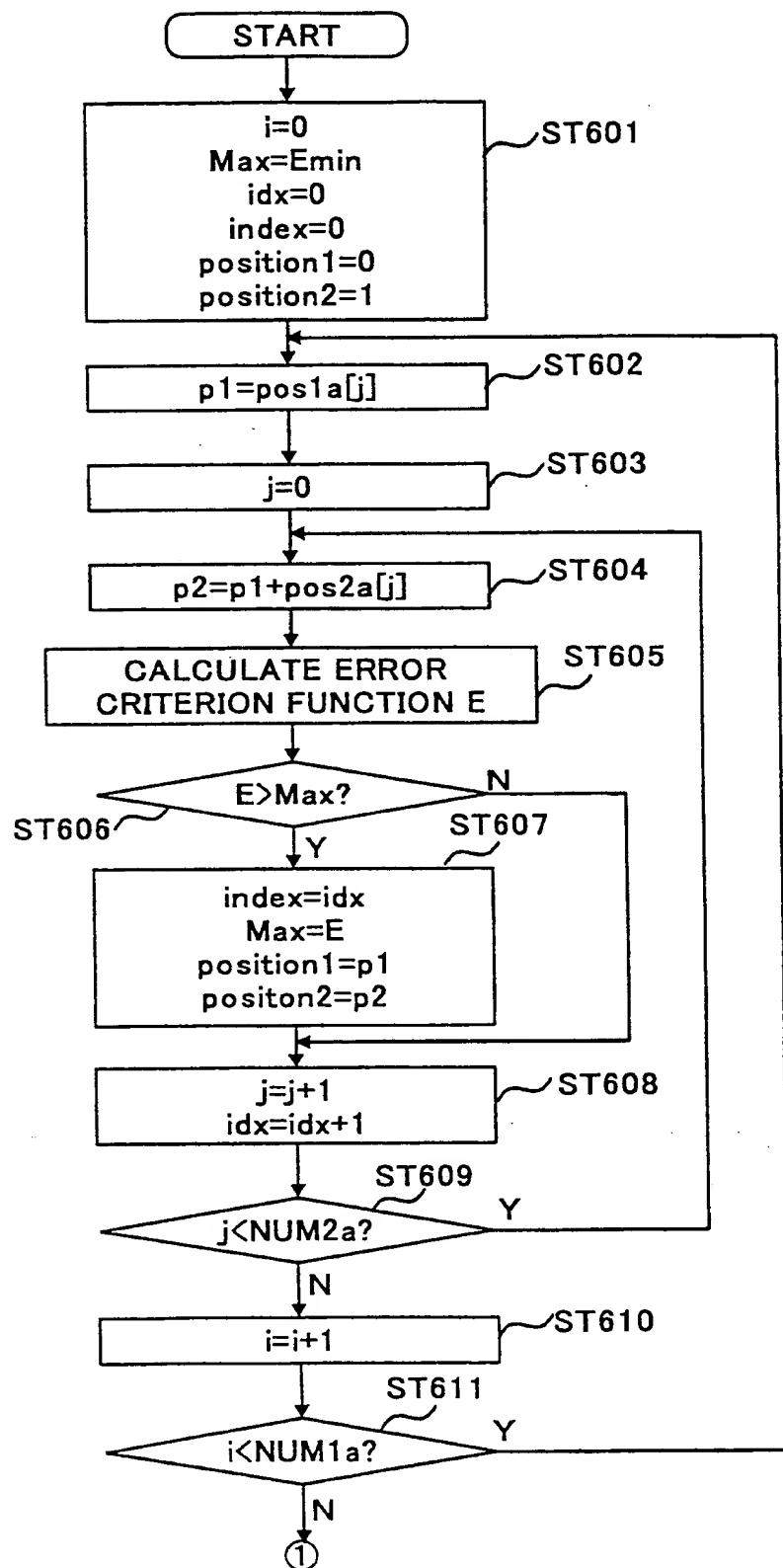


FIG.9

REPLACEMENT SHEET

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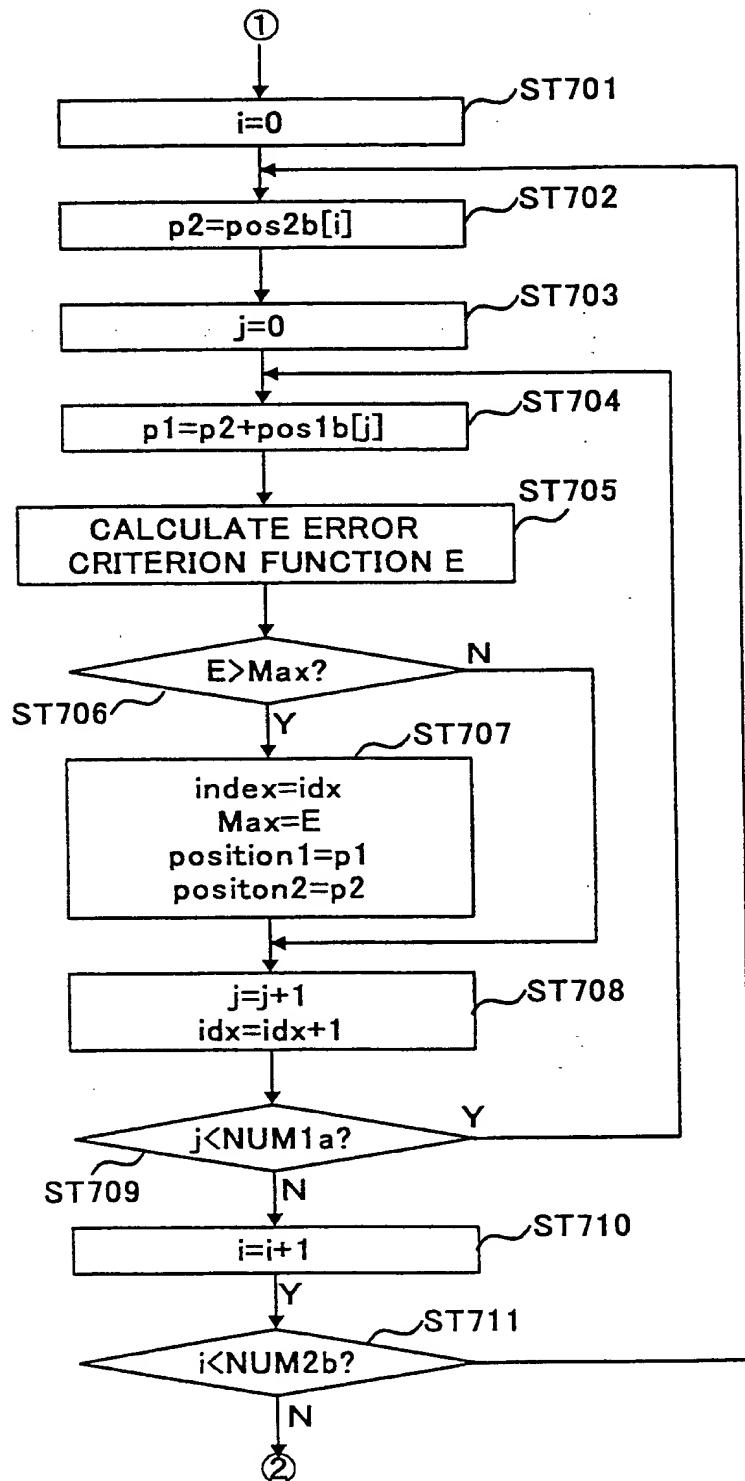


FIG.10

REPLACEMENT SHEET

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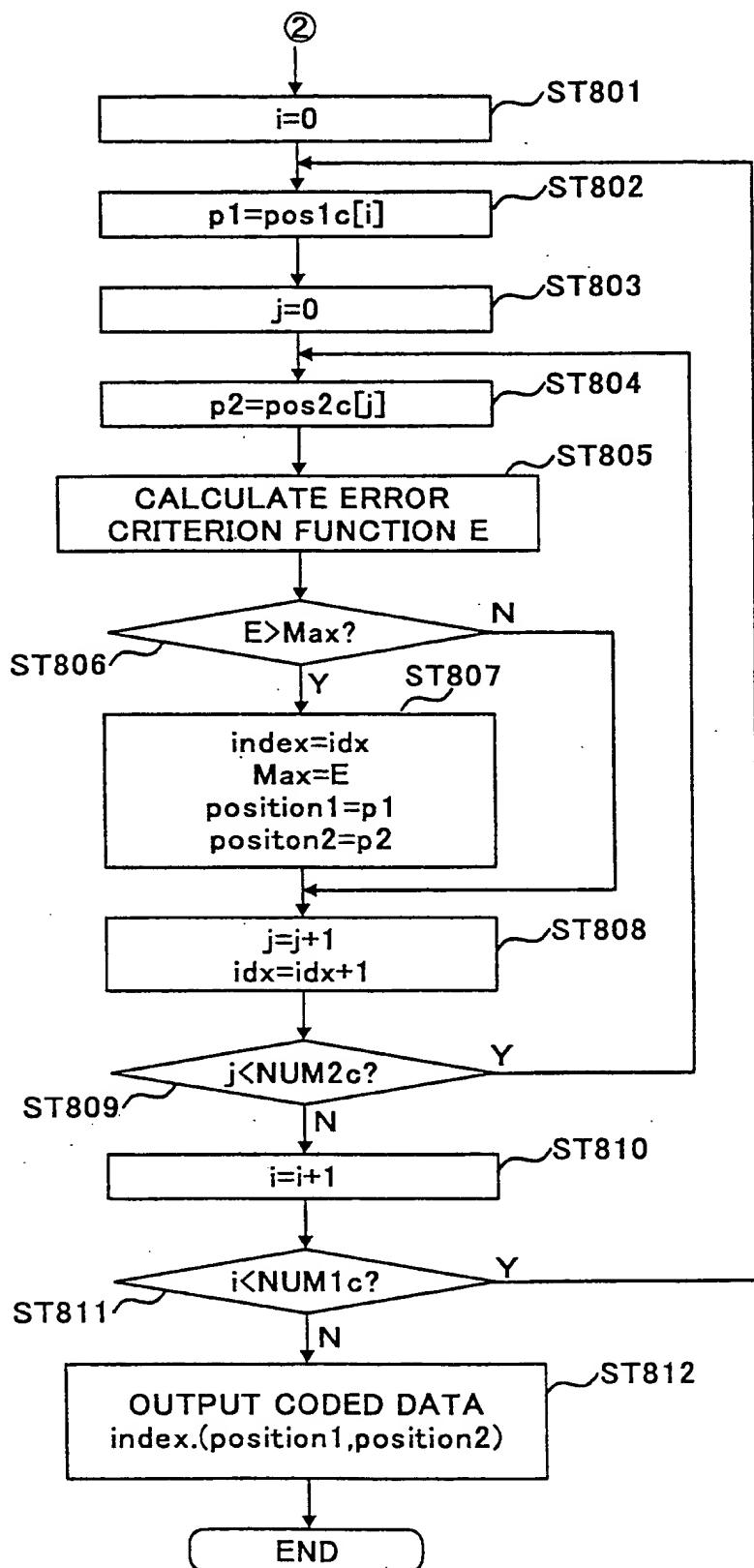


FIG.11

REPLACEMENT SHEET

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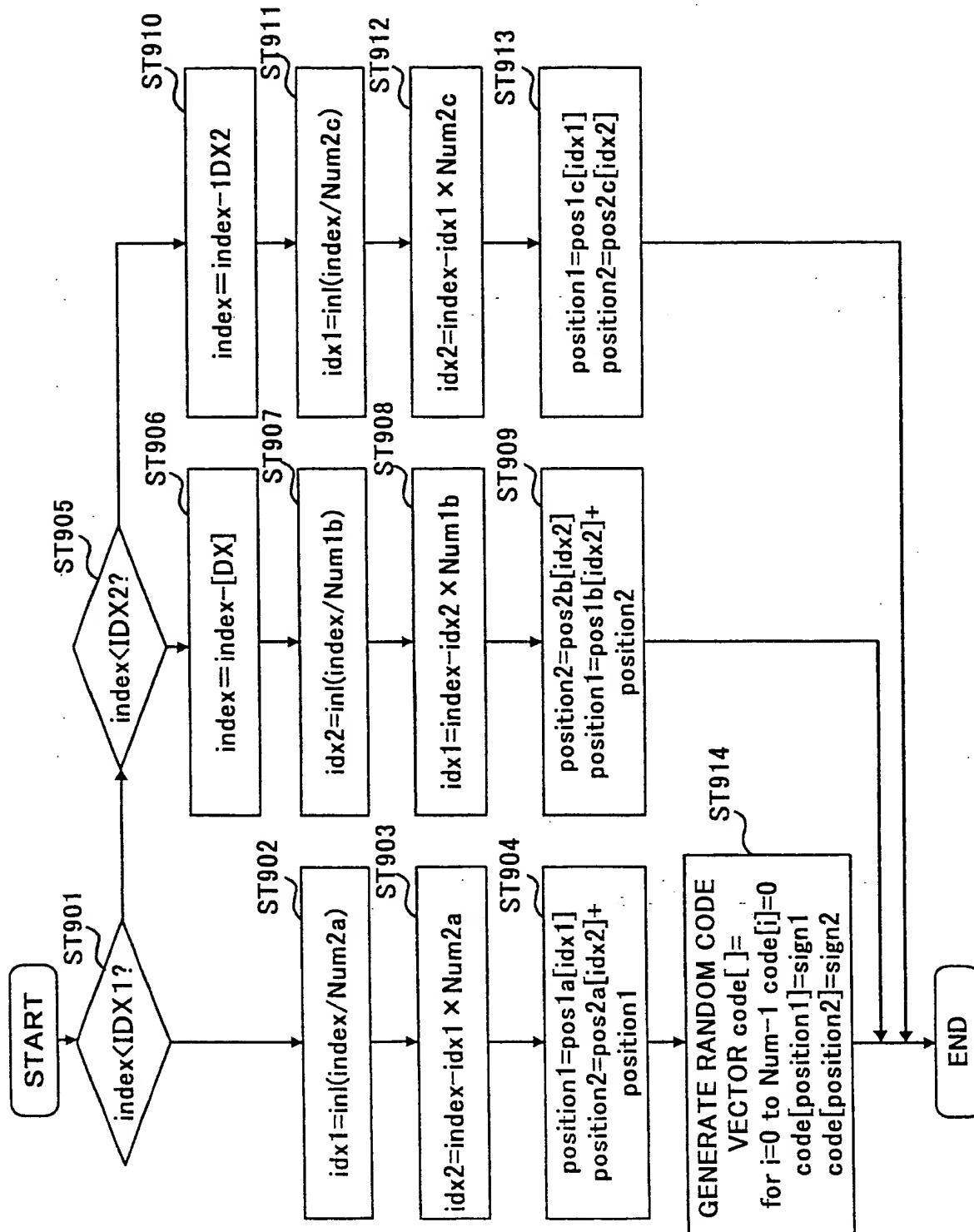


FIG.12

REPLACEMENT SHEET

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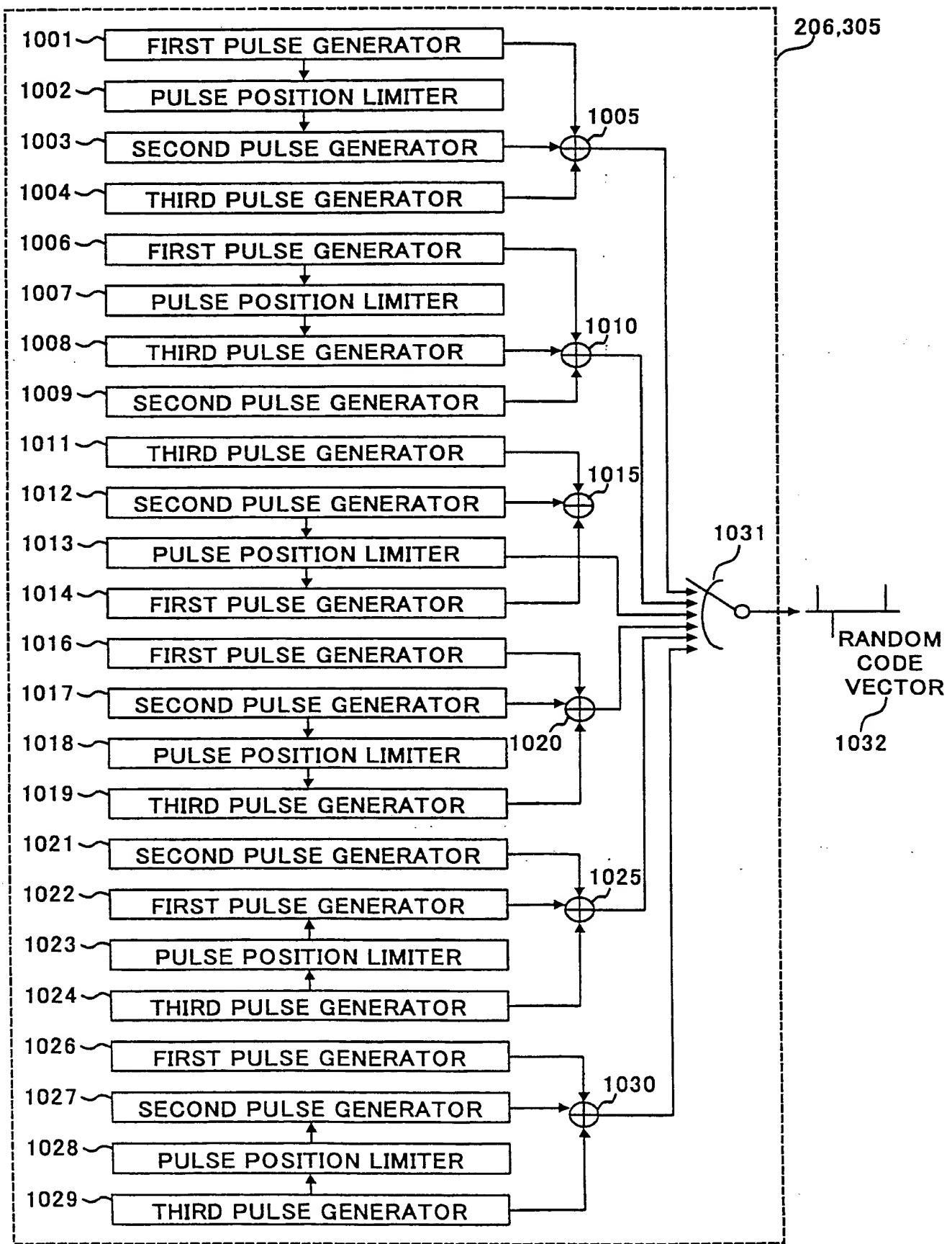


FIG.13

REPLACEMENT SHEET

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PULSE NUMBER		PULSE POSITION (a)
(a)	1	0,3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60,63,66,69,72
	2	P1+1,P1+4,P1+7
	3	2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59,62,65,68,71,74,77
PULSE NUMBER		PULSE POSITION (b)
(b)	1	P2+2,P2+5,P2+8
	2	1,4,7,10,13,16,19,22,25,28,31,34,37,40,43,46,49,52,55,58,61,64,67,70
	3	2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59,62,65,68,71,74,77
PULSE NUMBER		PULSE POSITION (c)
(c)	1	75,78
	2	73,76,79
	3	2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59,62,65,68,71,74,77
PULSE NUMBER		PULSE POSITION (d)
(d)	1	0,3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60,63,66,69
	2	1,4,7,10,13,16,19,22,25,28,31,34,37,40,43,46,49,52,55,58,61,64,67,70,73,76,79
	3	P1+2,P1+5,P1+8
PULSE NUMBER		PULSE POSITION (e)
(e)	1	P3+1,P3+4,P3+7
	2	1,4,7,10,13,16,19,22,25,28,31,34,37,40,43,46,49,52,55,58,61,64,67,70,73,76,79
	3	2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59,62,65,68,71
PULSE NUMBER		PULSE POSITION (f)
(f)	1	72,75,78
	2	1,4,7,10,13,16,19,22,25,28,31,34,37,40,43,46,49,52,55,58,61,64,67,70,73,76,79
	3	74,77
PULSE NUMBER		PULSE POSITION (g)
(g)	1	0,3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60,63,66,69,72,75,78
	2	1,4,7,10,13,16,19,22,25,28,31,34,37,40,43,46,49,52,55,58,61,64,67,70
	3	P2+1,P2+4,P2+7
PULSE NUMBER		PULSE POSITION (h)
(h)	1	0,3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60,63,66,69,72,75,78
	2	P3+2,P3+5,P3+8
	3	2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59,62,65,68,71
PULSE NUMBER		PULSE POSITION (i)
(i)	1	0,3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60,63,66,69,72,75,78
	2	73,76,79
	3	74,77

$$(25 \times 3 + 3 \times 24 + 2 \times 3) \times 26 + (24 \times 3 + 3 \times 24 + 3 \times 2) \times 27 + (24 \times 3 + 3 \times 24 + 3 \times 2) \times 27 = 12078$$

FIG.14

REPLACEMENT SHEET

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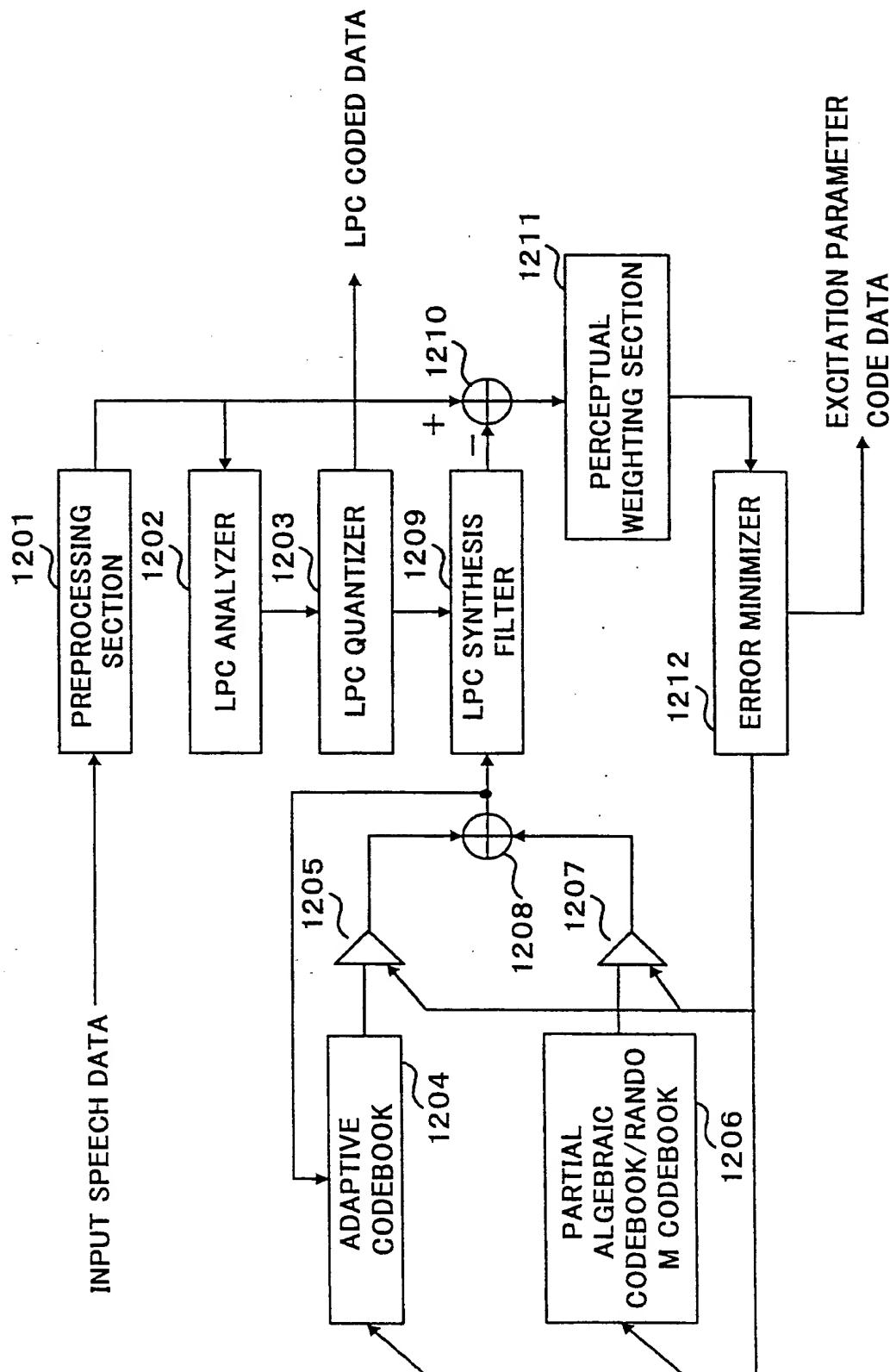


FIG. 15

REPLACEMENT SHEET

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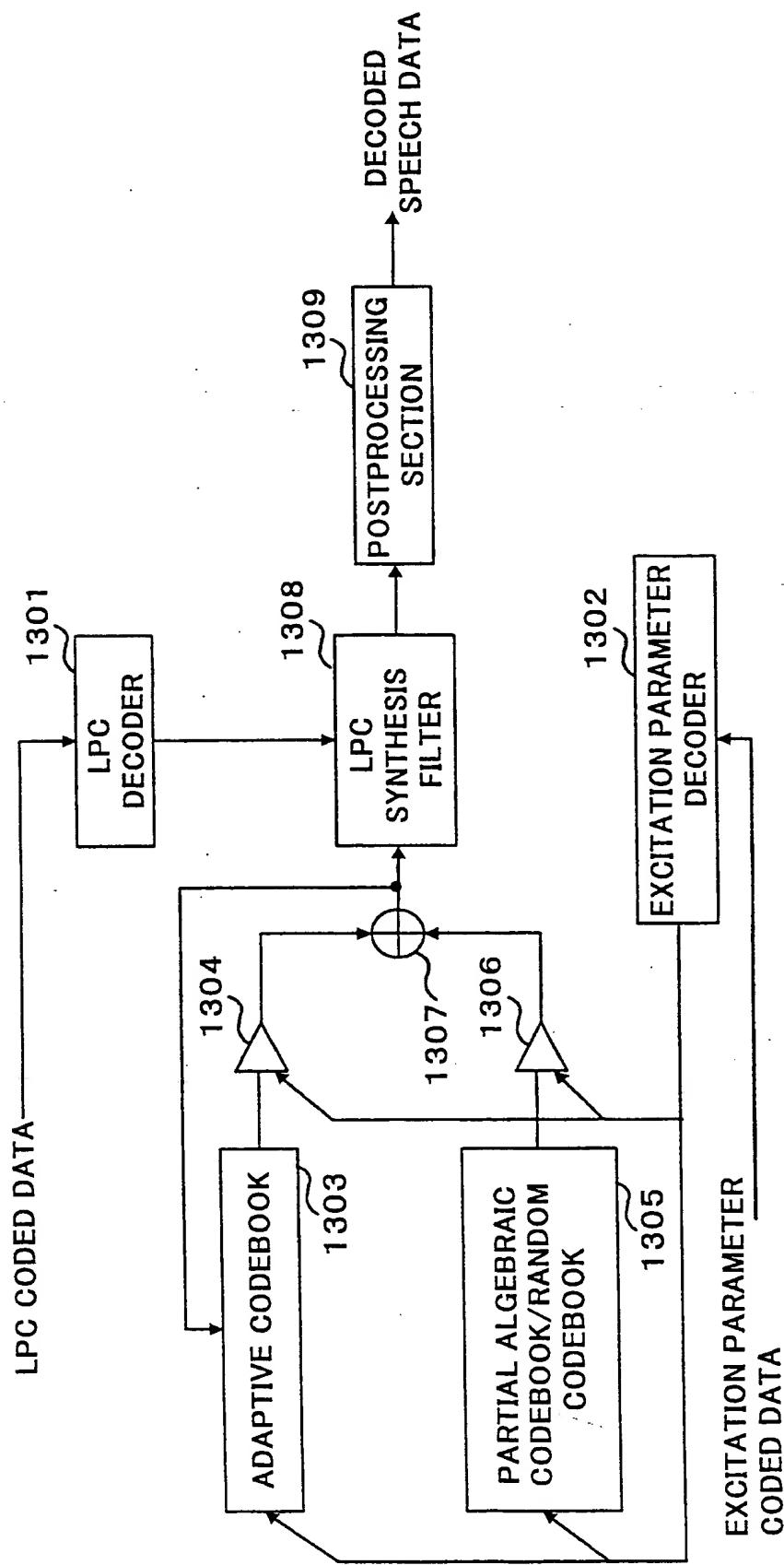


FIG. 16

REPLACEMENT SHEET

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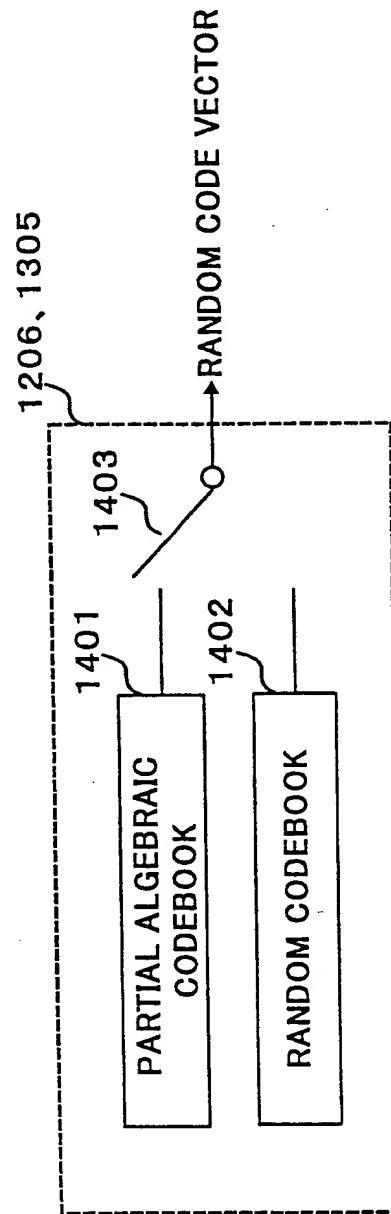


FIG.17

REPLACEMENT SHEET

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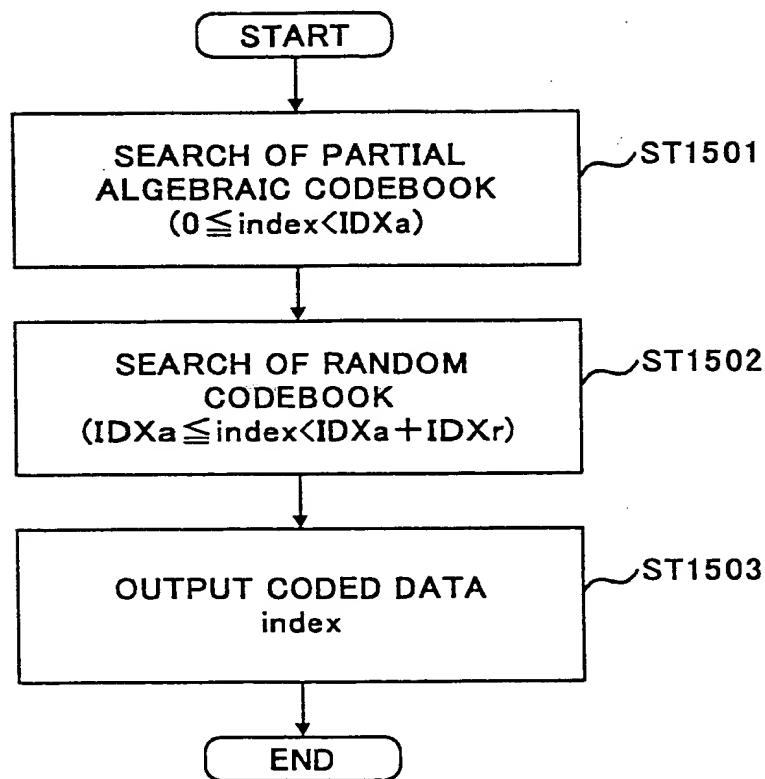


FIG.18

REPLACEMENT SHEET

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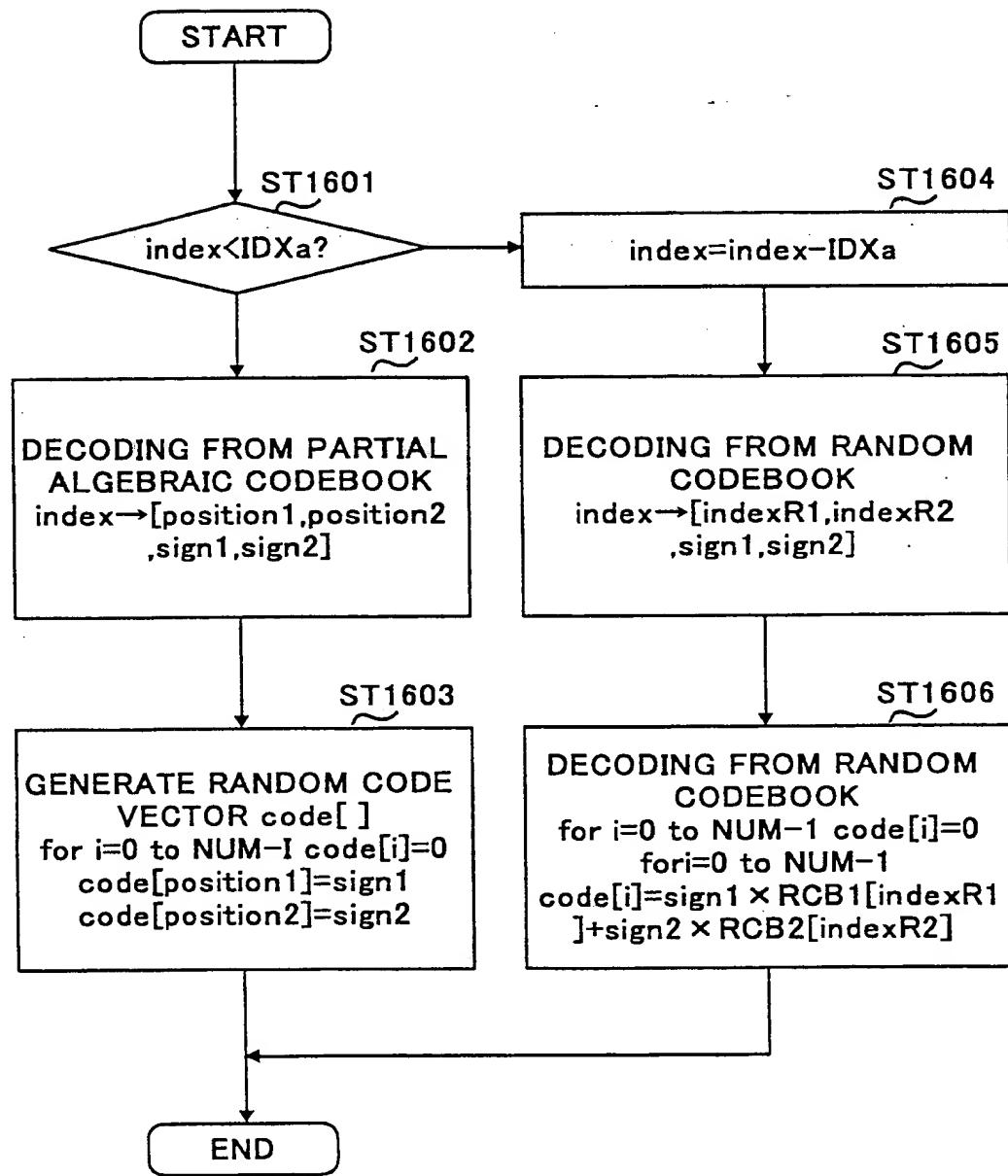


FIG.19

REPLACEMENT SHEET

19/39

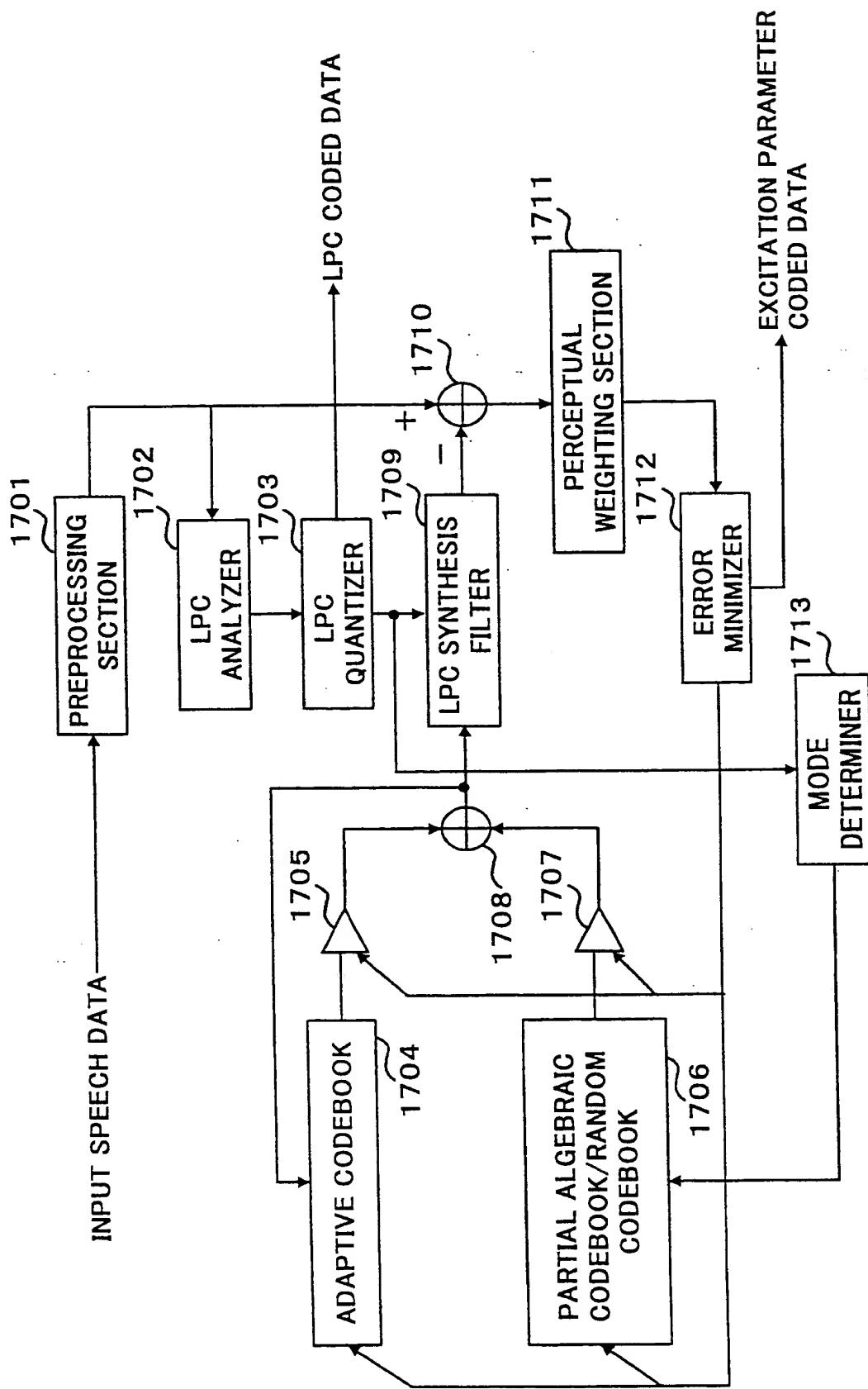


FIG.20

REPLACEMENT SHEET

20/39

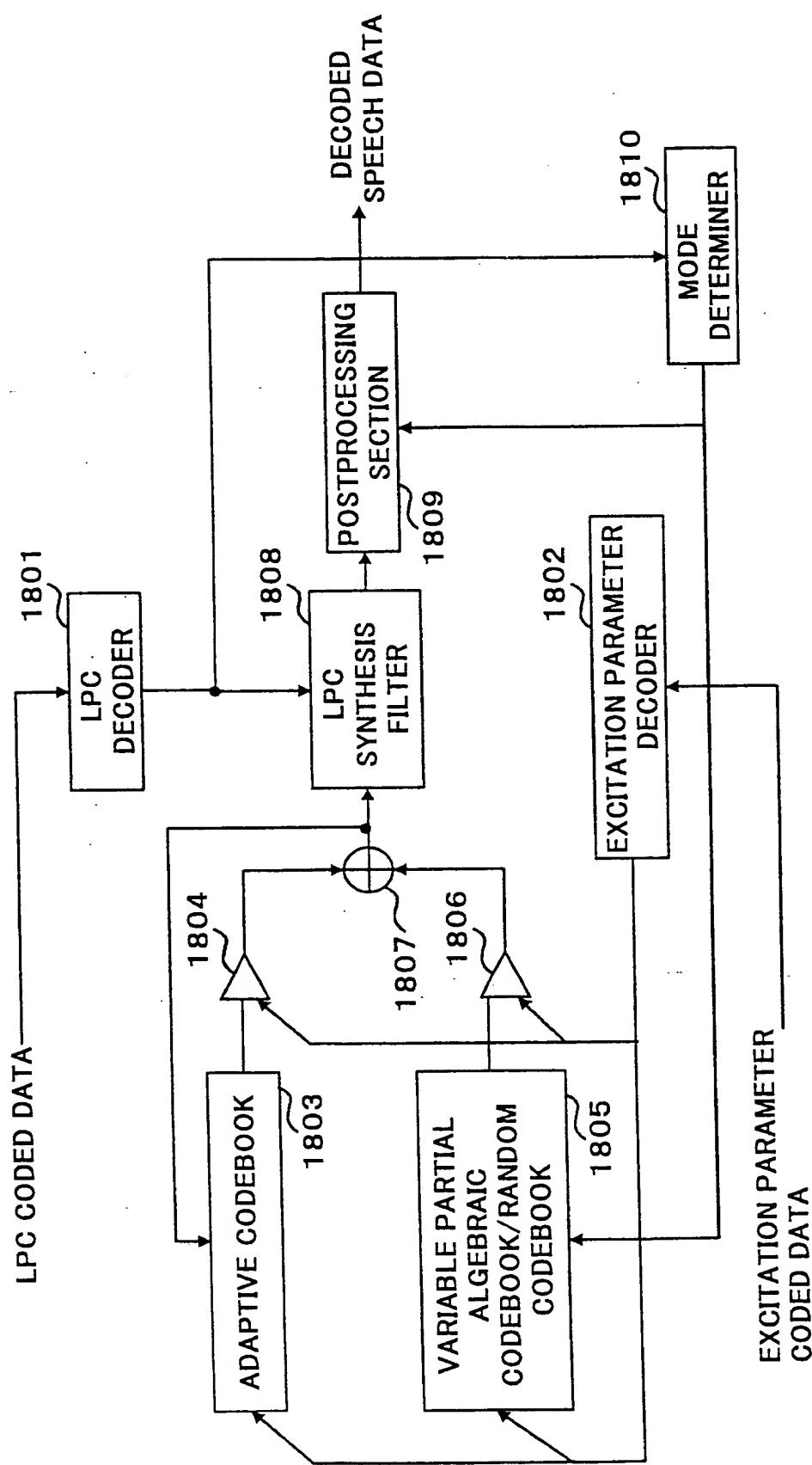


FIG.21

REPLACEMENT SHEET

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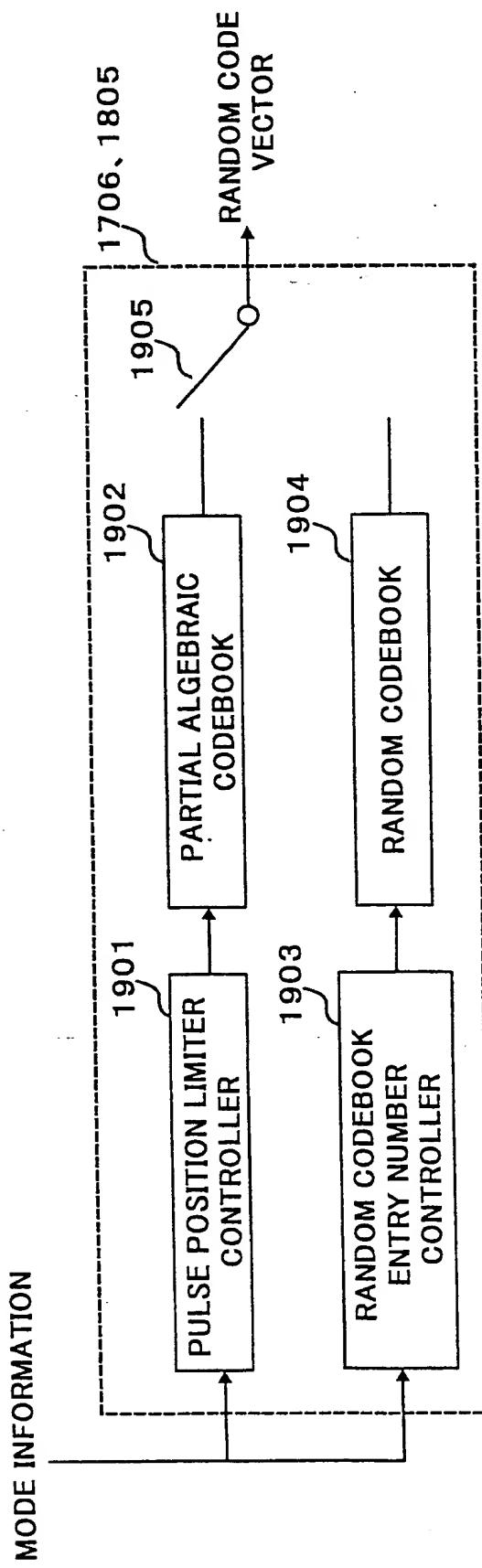


FIG.22

REPLACEMENT SHEET

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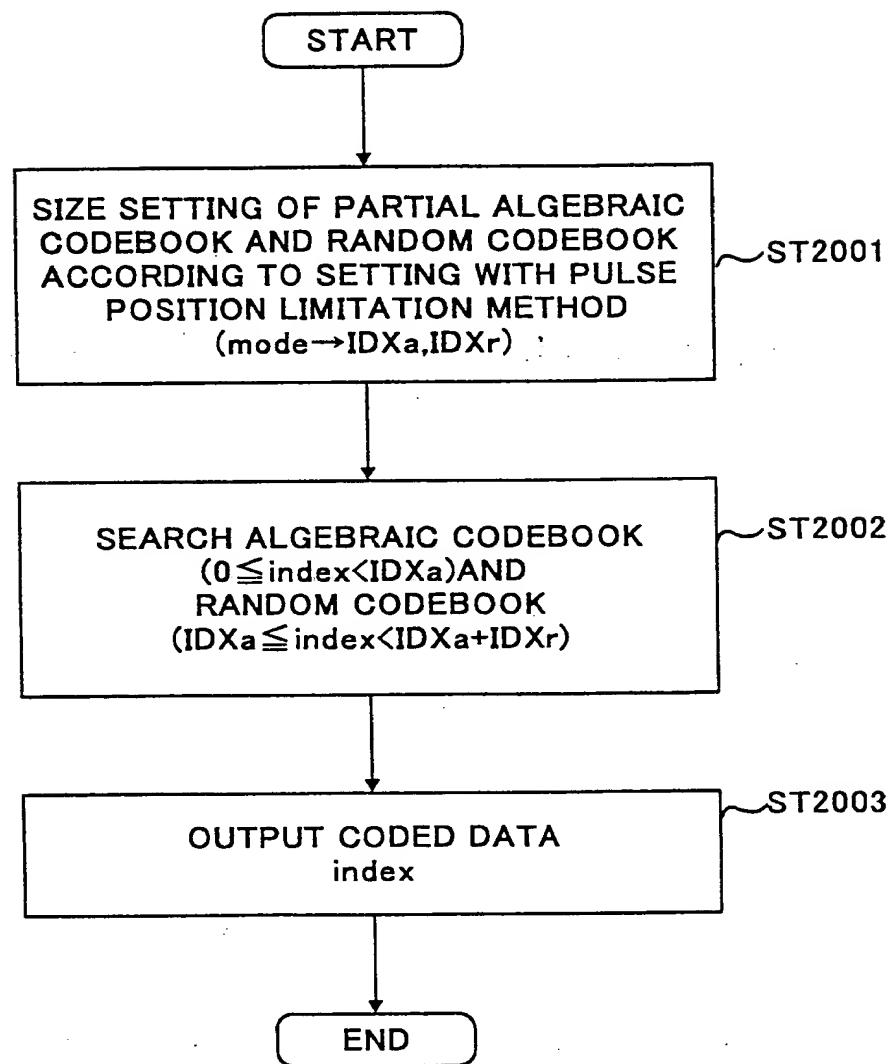


FIG.23

REPLACEMENT SHEET

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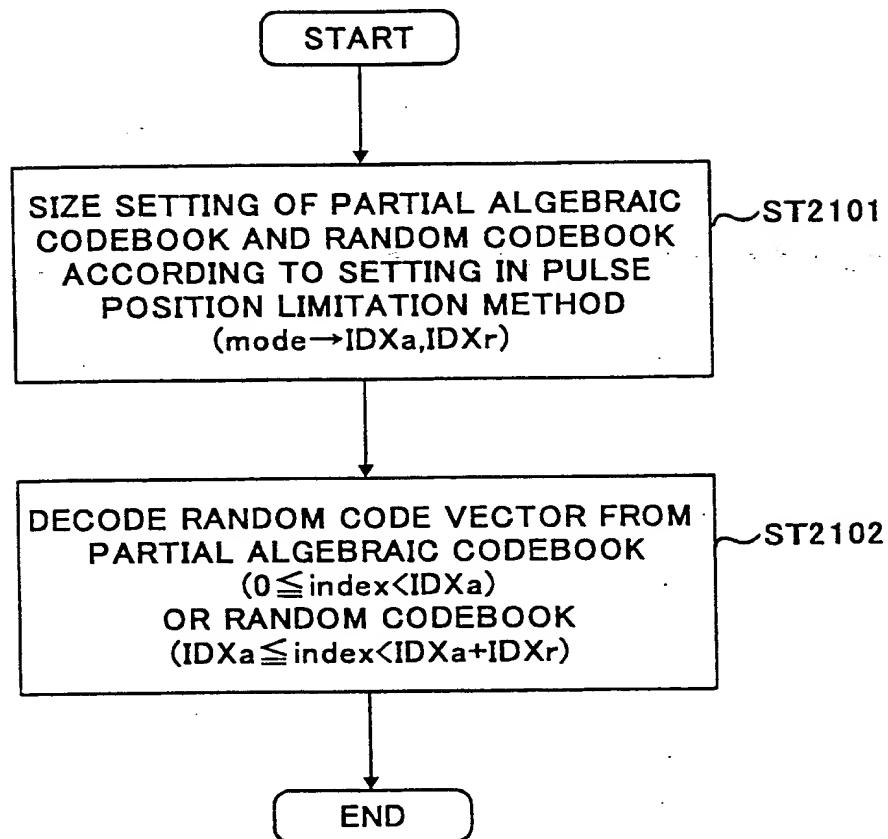


FIG.24

REPLACEMENT SHEET

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	pulse1(=P1)/CH1	pulse2(=P2)/CH2	INDEX
0	P1+1	0	P1+1
0	P1+3	1	Rb0
2	P1+1	2	P1+1
2	P1+3	3	Rb1
4	P1+1	4	P1+1
4	P1+3	5	Rb2
6	P1+1	6	P1+1
6	P1+3	7	Rb3
P2+1	1	8	1
P2+3	1	9	Rb0
P2+1	3	10	3
P2+3	3	11	P2+1
P2+1	5	12	Rb5
P2+3	5	13	P2+1
P2+1	7	14	Rb5
P2+3	7	15	Rb3
Ra0	Rb0	16	Rb0
Ra0	Rb1	17	Rb1
Ra0	Rb2	18	Rb2
Ra0	Rb3	19	Rb3
Ra1	Rb0	20	Rb0
Ra1	Rb1	21	Rb1
Ra1	Rb2	22	Rb2
Ra1	Rb3	23	Rb3
Ra2	Rb0	24	Rb0
Ra2	Rb1	25	Rb1
Ra2	Rb2	26	Rb2
Ra2	Rb3	27	Rb3
Ra3	Rb0	28	Rb0
Ra3	Rb1	29	Rb1
Ra3	Rb2	30	Rb2
Ra3	Rb3	31	Rb3

	pulse1(=P1)/CH1	pulse2(=P2)/CH2	INDEX
0	P1+1	0	P1+1
0	P1+3	1	Ra4
2	P1+1	2	2
2	P1+3	3	Ra4
4	P1+1	4	4
4	P1+3	5	Ra4
6	P1+1	6	6
6	P1+3	7	Ra4
P2+1	1	8	P2+1
P2+3	1	9	Ra5
P2+1	3	10	P2+1
P2+3	3	11	Ra5
P2+1	5	12	P2+1
P2+3	5	13	Ra5
P2+1	7	14	P2+1
P2+3	7	15	Ra5
Ra0	Rb0	16	Ra0
Ra0	Rb1	17	Ra0
Ra0	Rb2	18	Ra0
Ra0	Rb3	19	Ra0
Ra1	Rb0	20	Ra1
Ra1	Rb1	21	Ra1
Ra1	Rb2	22	Ra1
Ra1	Rb3	23	Ra1
Ra2	Rb0	24	Ra2
Ra2	Rb1	25	Ra2
Ra2	Rb2	26	Ra2
Ra2	Rb3	27	Ra2
Ra3	Rb0	28	Ra3
Ra3	Rb1	29	Ra3
Ra3	Rb2	30	Ra3
Ra3	Rb3	31	Ra3

PARTIAL ALGEBRAIC CODEBOOK SIZE = 4 x 2 + 4 x 2 = 16
 RANDOM CODEBOOK SIZE = 4 x 4 = 16

PARTIAL ALGEBRAIC CODEBOOK SIZE = 4 x 1 + 4 x 1 = 8
 RANDOM CODEBOOK SIZE = 6 x 4 = 24

FIG.25A

FIG.25B

REPLACEMENT SHEET

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INDEX	pulse1(=P1)/CH1	pulse2(=P2)/CH2	INDEX	pulse1(=P1)/CH1	pulse2(=P2)/CH2	INDEX
0	P1+1	0	0	P1+1	0	0
0	P1+3	1	0	Ra2	Rb0	1
2	P1+1	2	2	P1+1	P1+1	2
2	P1+3	3	2	Ra2	Rb1	3
4	P1+1	4	4	P1+1	P1+1	4
4	P1+3	5	4	Ra2	Rb2	5
P2+1	6	P2+1	1	P2+1	1	6
P2+3	1	7	1	Ra0	Rb2	7
P2+1	3	8	P2+1	3	3	8
P2+3	3	9	Ra1	Rb2	Rb2	9
6	5	10	6	6	5	10
6	7	11	6	7	7	11
Ra0	Rb0	12	Ra0	Rb0	Rb0	12
Ra0	Rb1	13	Ra0	Rb1	Rb1	13
Ra1	Rb0	14	Ra1	Rb0	Rb0	14
Ra1	Rb1	15	Ra1	Rb1	Rb1	15

INDEX	pulse1(=P1)/CH1	pulse2(=P2)/CH2	INDEX	pulse1(=P1)/CH1	pulse2(=P2)/CH2	INDEX
0	P1+1	0	0	P1+1	0	0
0	P1+3	1	0	Ra2	Rb0	1
2	P1+1	2	2	P1+1	P1+1	2
2	P1+3	3	2	Ra2	Rb1	3
4	P1+1	4	4	P1+1	P1+1	4
4	P1+3	5	4	Ra2	Rb2	5
P2+1	6	P2+1	1	P2+1	1	6
P2+3	1	7	1	Ra0	Rb2	7
P2+1	3	8	P2+1	3	3	8
P2+3	3	9	Ra1	Rb2	Rb2	9
6	5	10	6	6	5	10
6	7	11	6	7	7	11
Ra0	Rb0	12	Ra0	Rb0	Rb0	12
Ra0	Rb1	13	Ra0	Rb1	Rb1	13
Ra1	Rb0	14	Ra1	Rb0	Rb0	14
Ra1	Rb1	15	Ra1	Rb1	Rb1	15

PARTIAL ALGEBRAIC CODEBOOK SIZE =
 $3 \times 1 + 2 \times 1 + 1 \times 2 = 7$
 RANDOM CODEBOOK SIZE = $6 \times 4 = 24$

PARTIAL ALGEBRAIC CODEBOOK SIZE =
 $3 \times 2 + 2 \times 2 + 1 \times 2 = 12$
 RANDOM CODEBOOK SIZE = $2 \times 2 = 4$

FIG.26B

FIG.26A

REPLACEMENT SHEET

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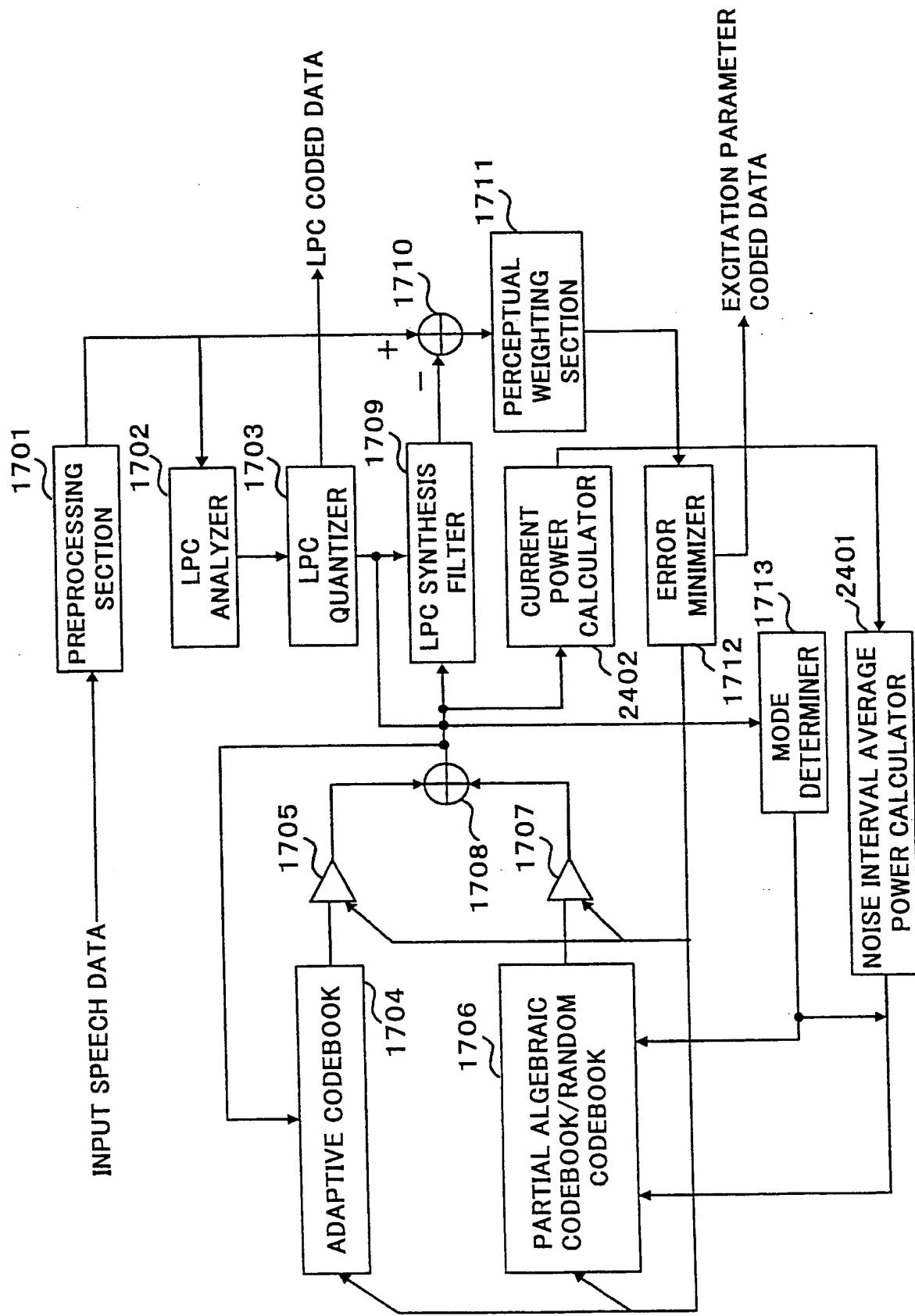


FIG.27

REPLACEMENT SHEET

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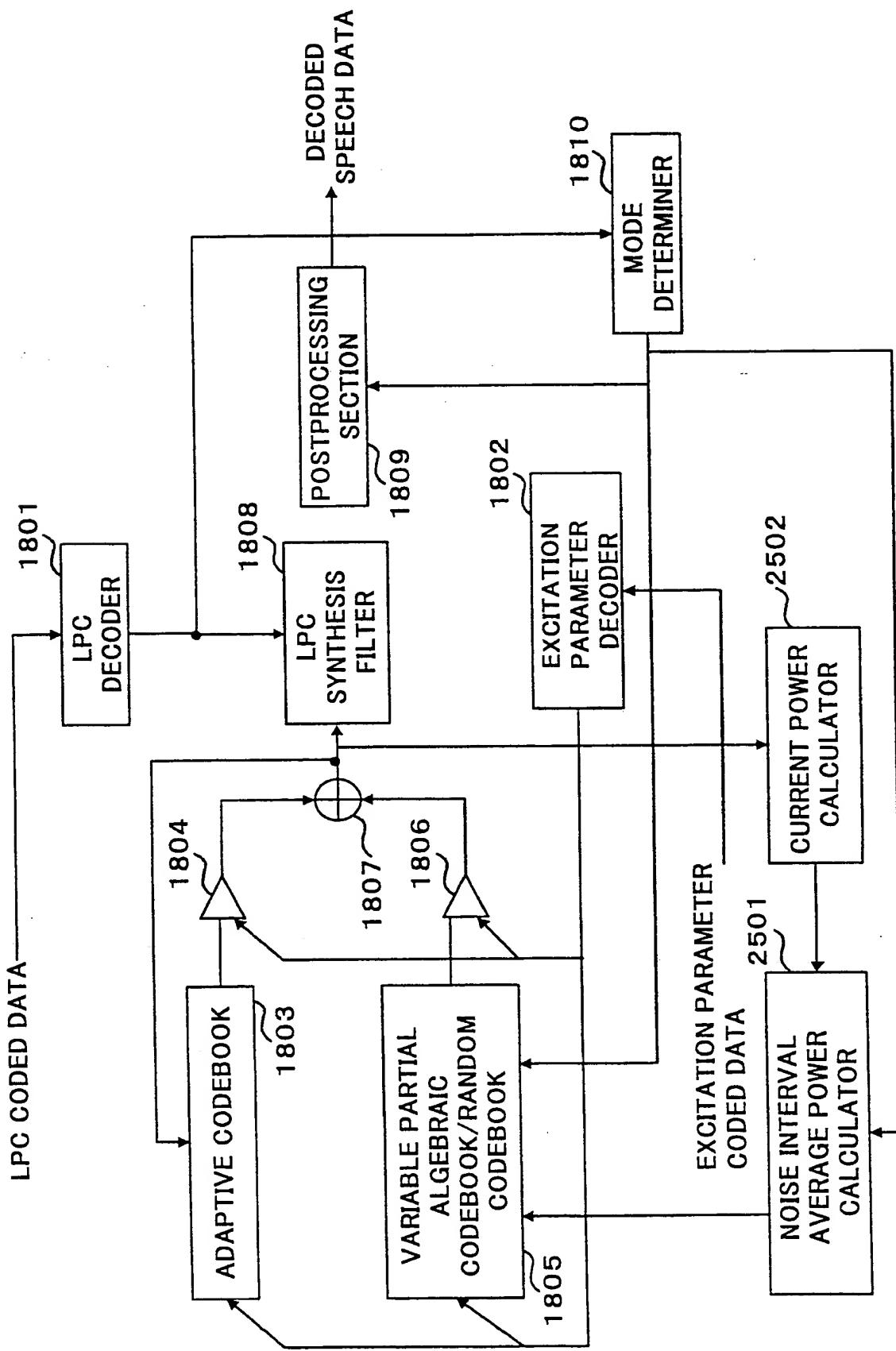


FIG.28

REPLACEMENT SHEET

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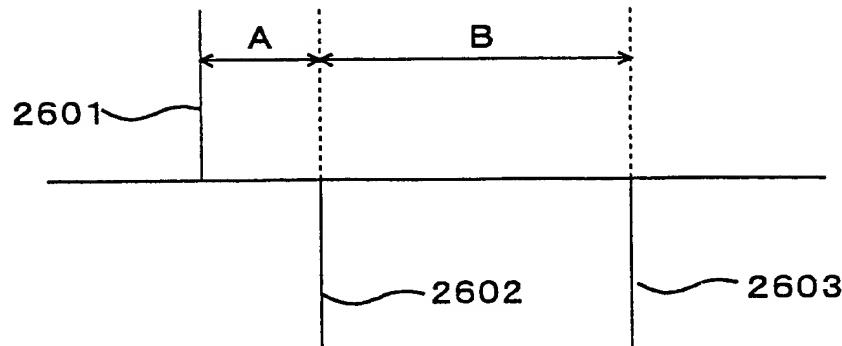


FIG.29

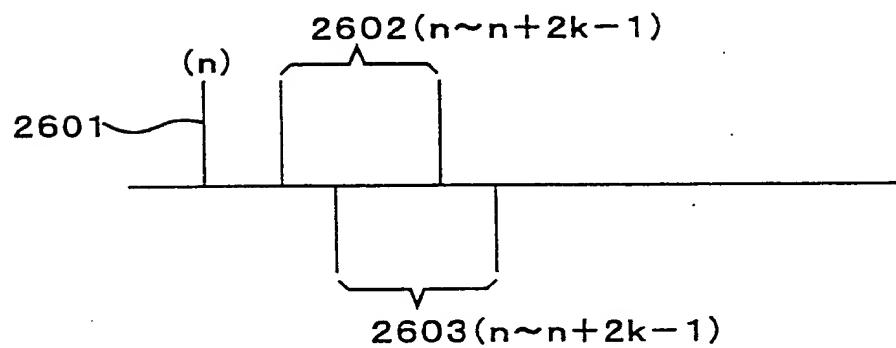


FIG.30A

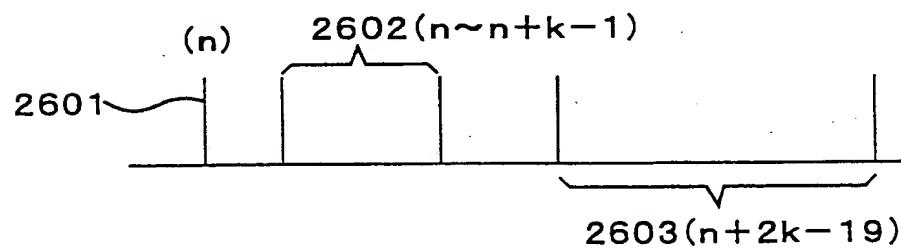


FIG.30B

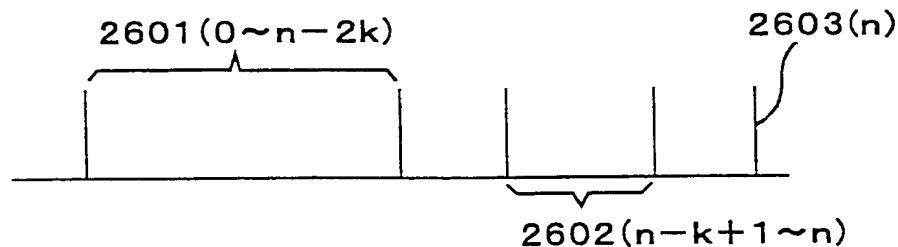


FIG.30C

REPLACEMENT SHEET

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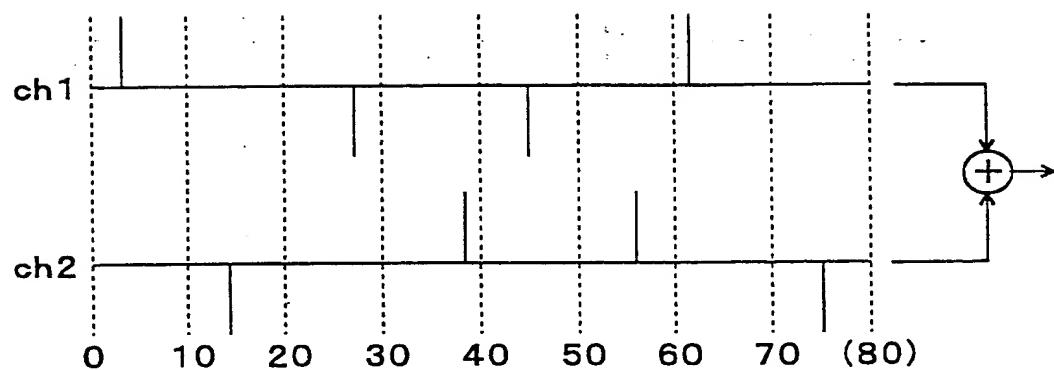


FIG.31

REPLACEMENT SHEET

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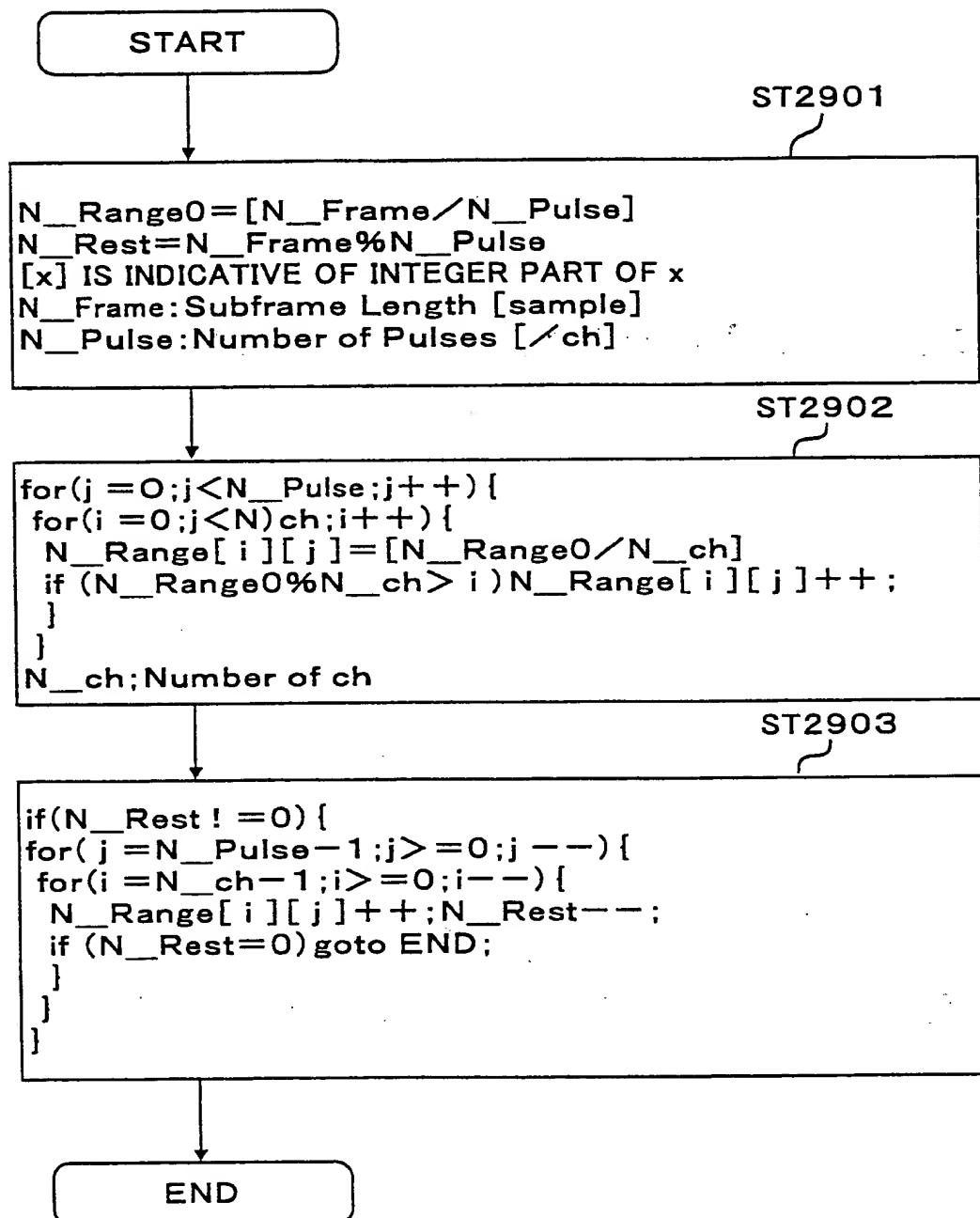


FIG.32

REPLACEMENT SHEET

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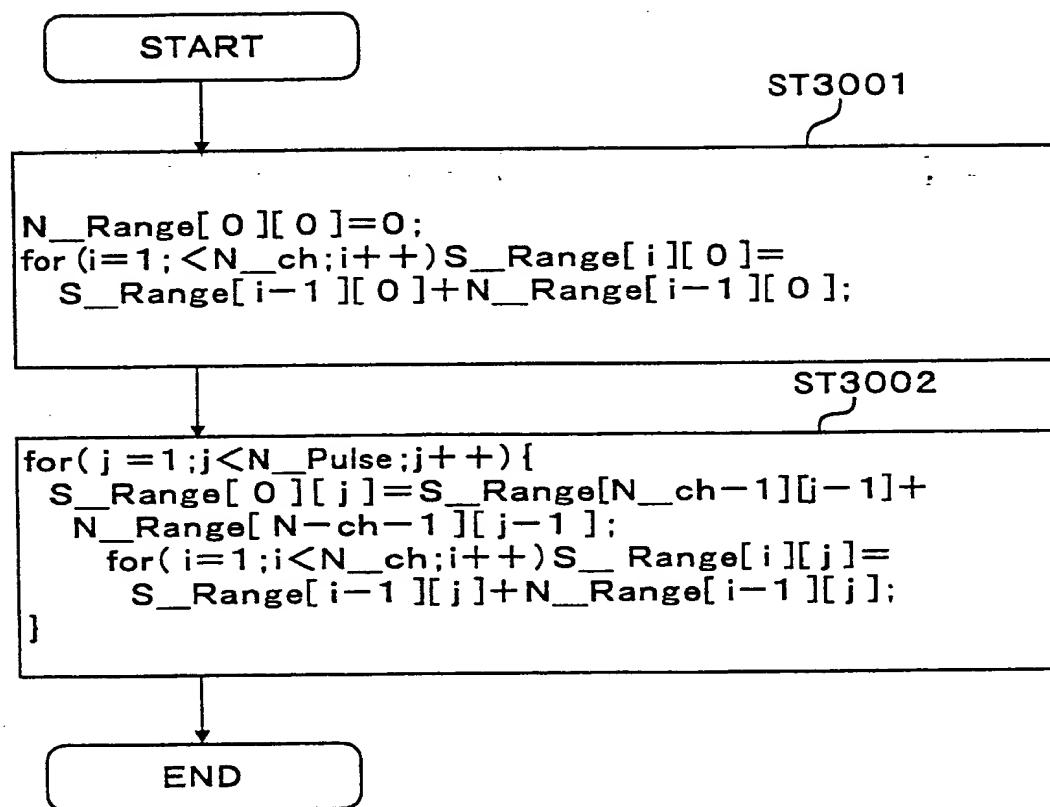


FIG.33

REPLACEMENT SHEET

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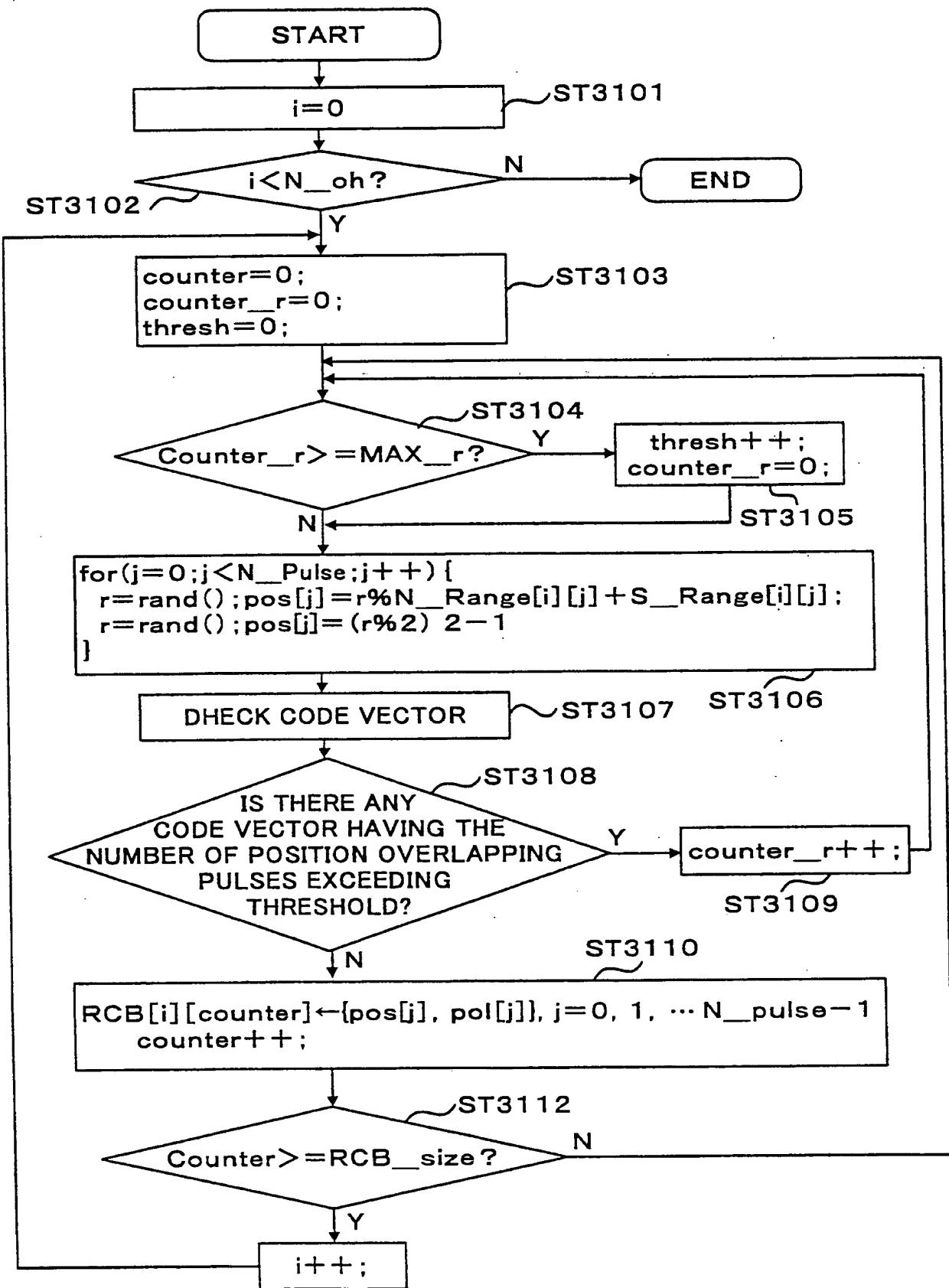


FIG.34

REPLACEMENT SHEET

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THE NUMBER OF PULSES 4		ARRANGEMENT RANGE OF EACH PULSE		STARTING POSITION OF EACH RANGE	
PULSE NUMBER	j	ch1 (N [0][i])	ch2 (N [1][i])	ch1 (S [0][i])	ch2 (S [1][i])
0	0	10	10	0	10
1	1	10	10	20	30
2	2	10	10	40	50
3	3	10	10	60	70

FIG.35A

THE NUMBER OF PULSES 6		ARRANGEMENT RANGE OF EACH PULSE		STARTING POSITION OF EACH RANGE	
PULSE NUMBER	j	ch1 (N [0][i])	ch2 (N [1][i])	ch1 (S [0][i])	ch2 (S [1][i])
0	0	7	6	0	7
1	1	7	6	13	20
2	2	7	6	26	33
3	3	7	6	39	46
4	4	7	6	52	59
5	5	8	7	65	73

FIG.35B

REPLACEMENT SHEET

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REPLACEMENT SHEET

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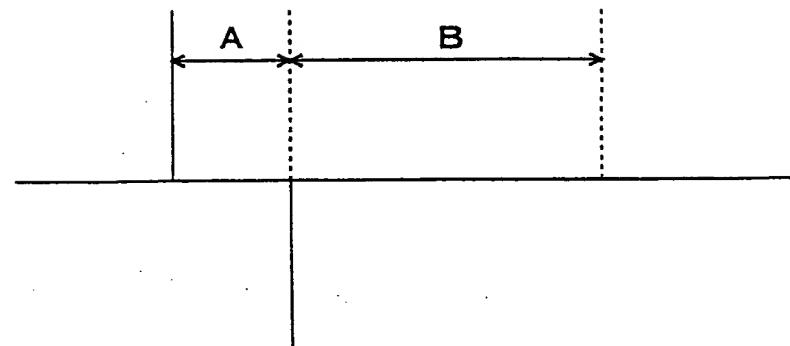


FIG.37A

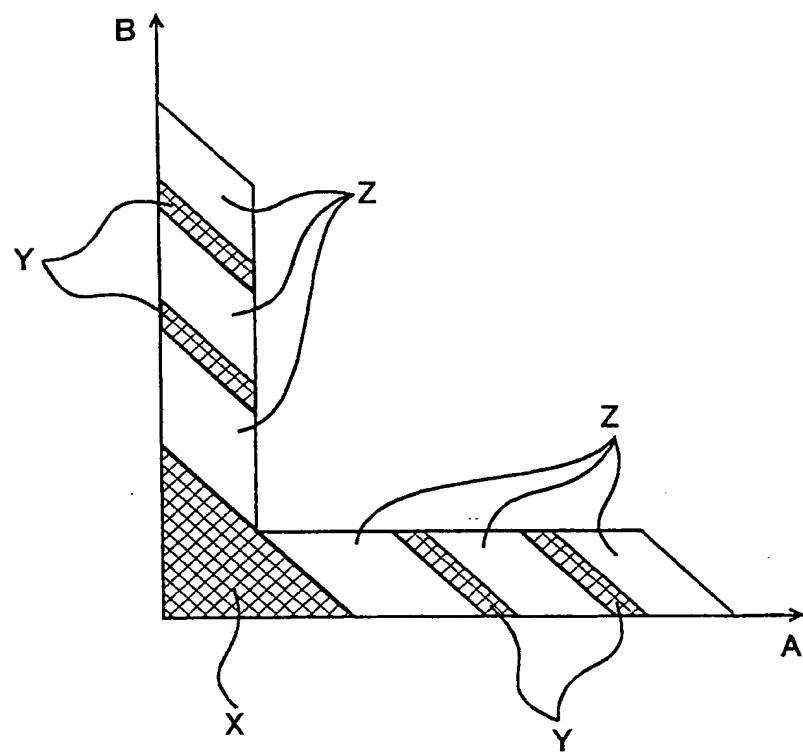
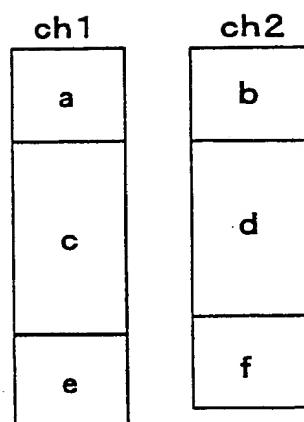


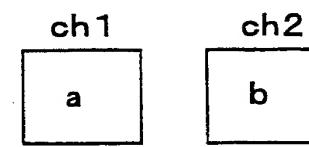
FIG.37B

REPLACEMENT SHEET

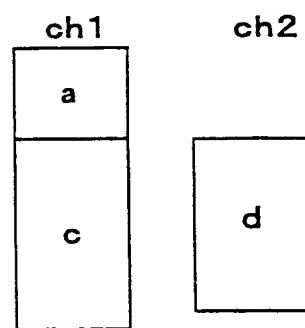
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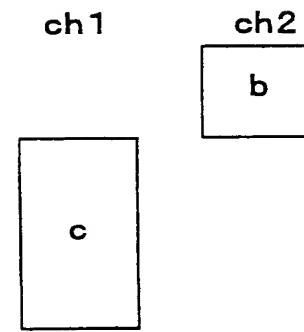
(a)



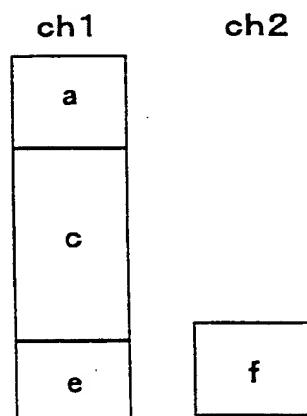
(b)



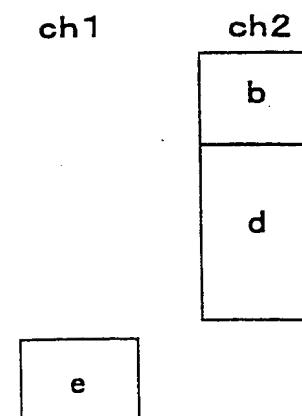
(c)



(d)



(e)



(f)

FIG.38

REPLACEMENT SHEET

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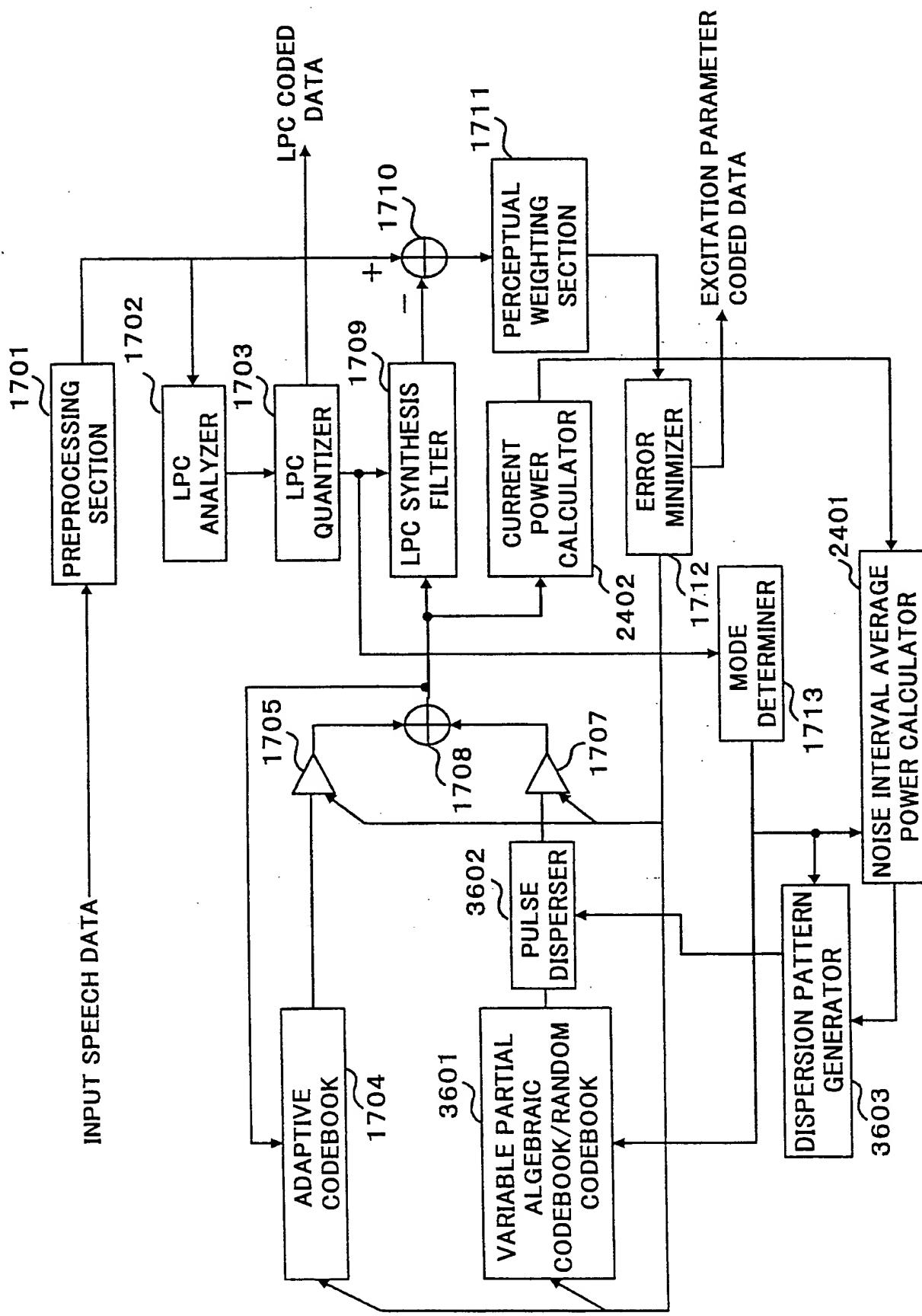


FIG. 39

REPLACEMENT SHEET

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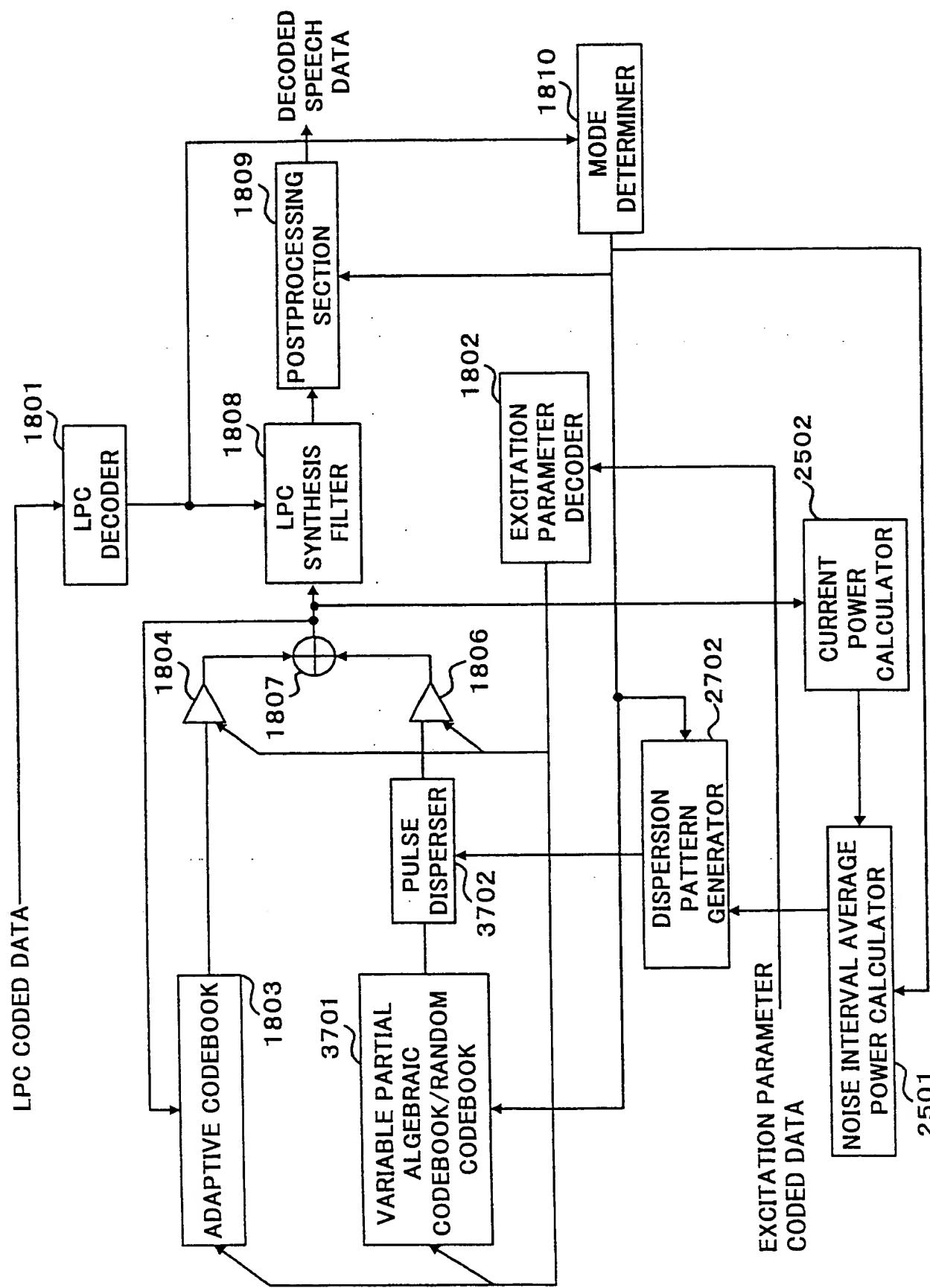


FIG.40

REPLACEMENT SHEET

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(SWITCH A PLURALITY OF KINDS OF DISPERSION PATTERNS)

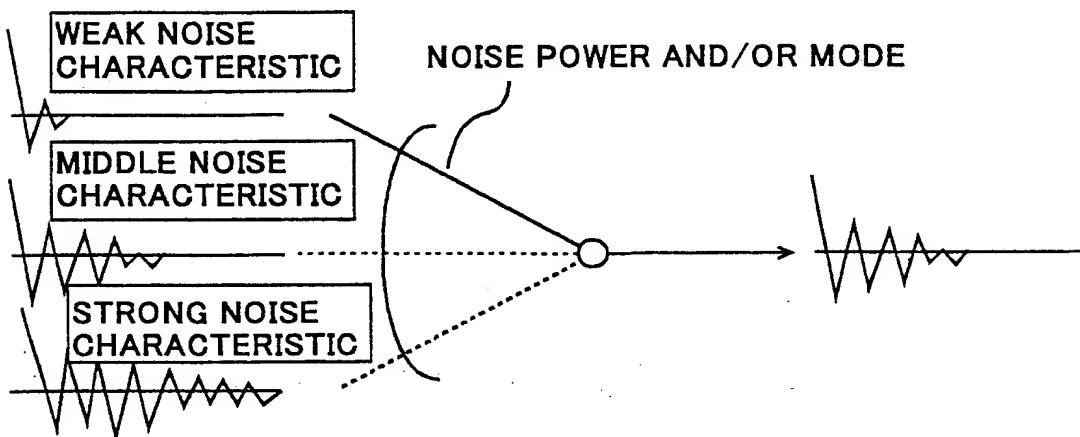


FIG.41

(PROCESS ONE KIND OF DISPRERSION PATTERN)

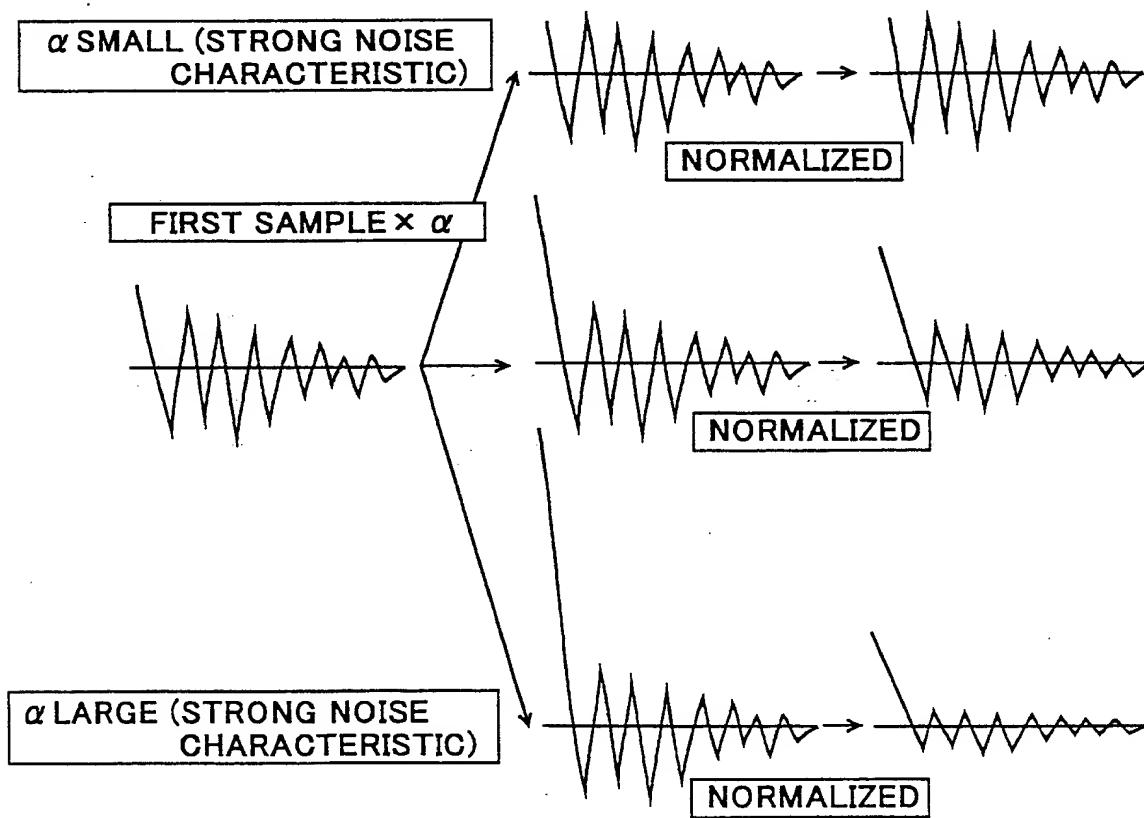


FIG.42